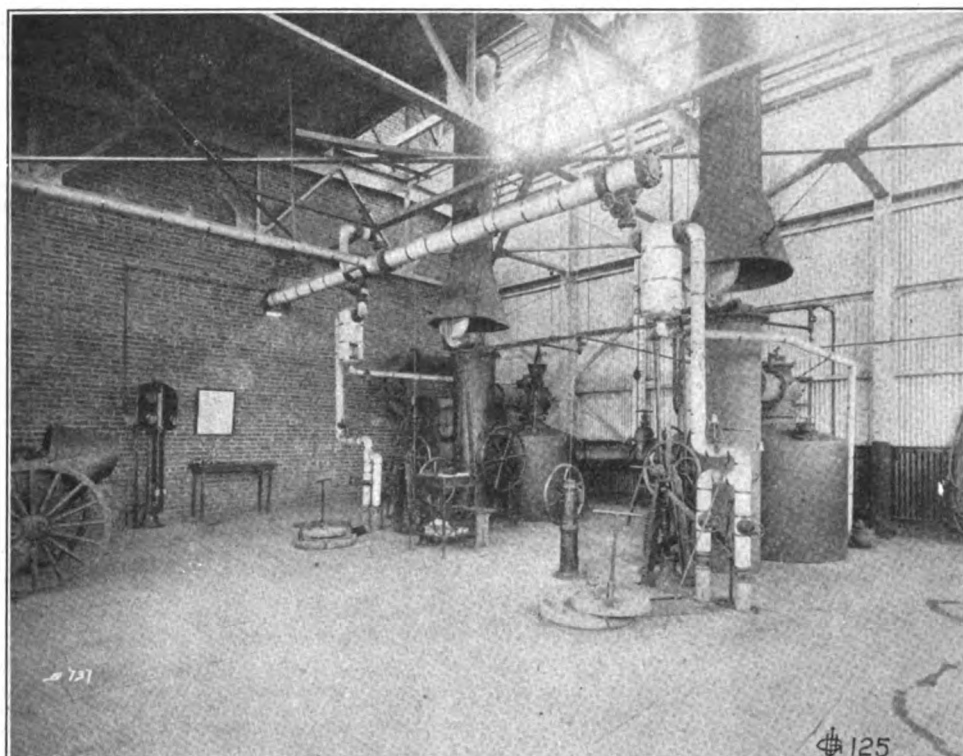


THIS
BLUE GAS APPARATUS
IS LOCATED AT THE
BLAW-KNOX COMPANY'S PLANT
ITS PRODUCT IS BEING SUCCESSFULLY USED FOR MANY
INDUSTRIAL PURPOSES



U. G. I. BLUE GAS PLANTS

CAN BE BUILT IN LARGE OR SMALL CAPACITIES
AND PRODUCE A CLEAN, COOL GAS OF HIGH FLAME
TEMPERATURE

WE STAND READY TO HELP YOU WITH
FACTS AND FIGURES

THE U. G. I. CONTRACTING CO.

Broad and Arch Sts., Philadelphia

335 Peoples Gas Bldg., Chicago

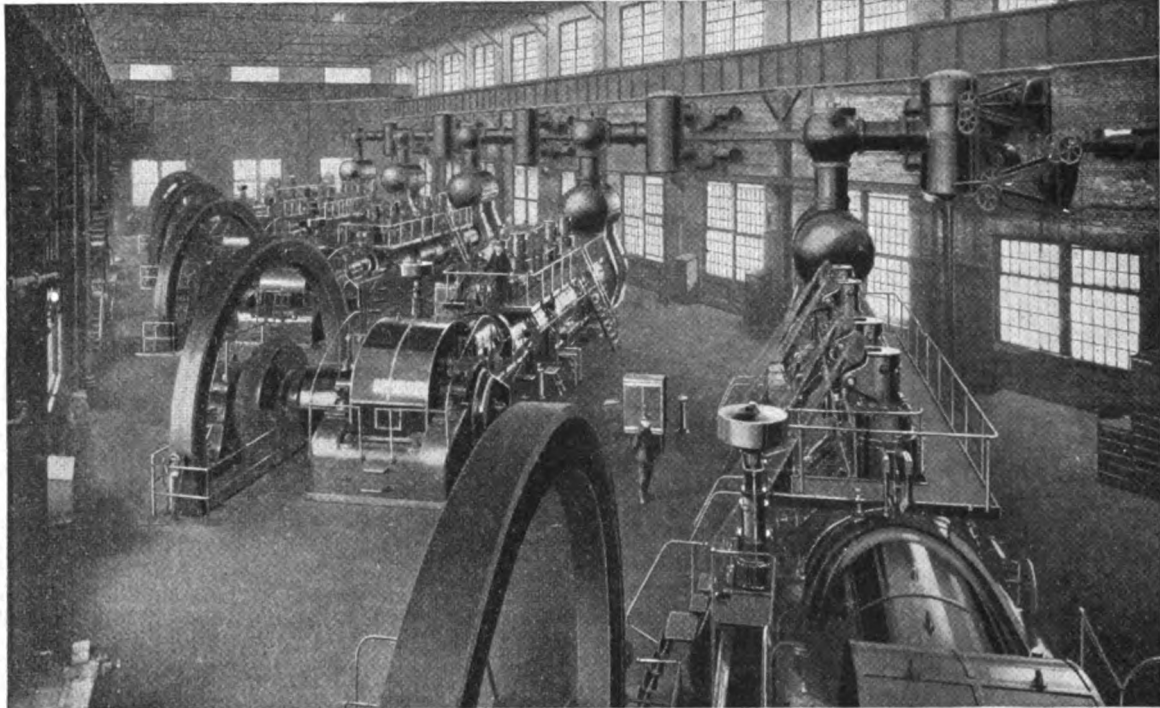
928 Union Arcade, Pittsburgh



Co-operate:—Refer to The Blast Furnace and Steel Plant

MESTA

GAS BLOWING & POWER ENGINES



Installation of Five Mesta Gas Blowing Engines.

UTILIZE YOUR BLAST FURNACE GAS TO THE BEST ADVANTAGE BY INSTALLING **MESTA GAS BLOWING & POWER ENGINES**

CONSIDER THESE FACTS

The amount of gas liberated from the average Blast Furnace under normal operating conditions is about 150,000 cu. ft. per ton of pig iron production in 24 hours. Of this amount the following distribution is made:

Consumed by hot blast stoves.....	30 to 32%
" " Gas Blowing Engines.....	10 to 12%
" " auxiliaries and loss by leakage	8 to 10%

Surplus Gas—Approximately 50%

This surplus gas, when utilized in Gas Engines for the generation of power to be used outside of the Blast Furnace Plant, will deliver, continuously, at least 25 Horse Power per ton of Iron produced, which is more than sufficient to operate the usual Steel Plant.

For reliability and ease of operation, Mesta Gas Engines are equivalent to any steam driven unit.

MANUFACTURED BY

Mesta Machine Company

PITTSBURGH, PA.

MANUFACTURERS OF

Gas and Steam Engines, Blowing Engines, Reversing Engines, Rolling Mill Machinery, Forging Presses, Gear Drives, Air Compressors, Condensers, Rolls, Pinions, Cut and Machine Molded Gears, Iron and Steel Castings, Forgings, Forging Ingots, etc.

BRANCH OFFICES

New York
Singer Bldg.

Chicago
McCormick Bldg.

Pittsburgh
Oliver Bldg.

Washington, D. C.
Munsey Bldg.

REPRESENTATIVES

L. R. Coffin
Holbrook Bldg.
San Francisco, Cal.

Shook & Fletcher Supply Co.
Brown-Mar Bldg.
Birmingham, Ala.

J. B. Corrie & Co.
15 Victoria St.
London, England

Mario Tansini, Engr.
Via S. Marto 10
Milan, Italy

Mitus & Company, Ltd.
65 Broadway, New York
Tokyo, Japan

Co-operate:—Refer to The Blast Furnace and Steel Plant

Our— ROLLS

Reliability—Strength—Ton-
nage—Uniformity.

STEEL ROLLS

for Blooming
and Roughing
Purposes.

SPECIAL STEEL ROLLS

for Greater Strength
and Wearing Quality.

MANGANITE ROLLS

Hard, Medium and Mild grades for use in Roughing,
Strand and Finishing Mills—approximate steel in
strength and chill in wearing quality.



GEARS AND PINIONS

Cast or Cut
Teeth

Made of Nickel,
Carbon and
Alloy Steel

Scientifically
Heat Treated

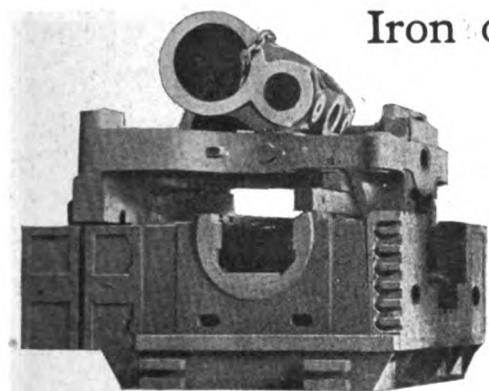
LARGE CASTINGS

Iron or Steel—Any Size—Any Weight

Mackintosh-Hemphill Company

Pittsburgh, Pa.

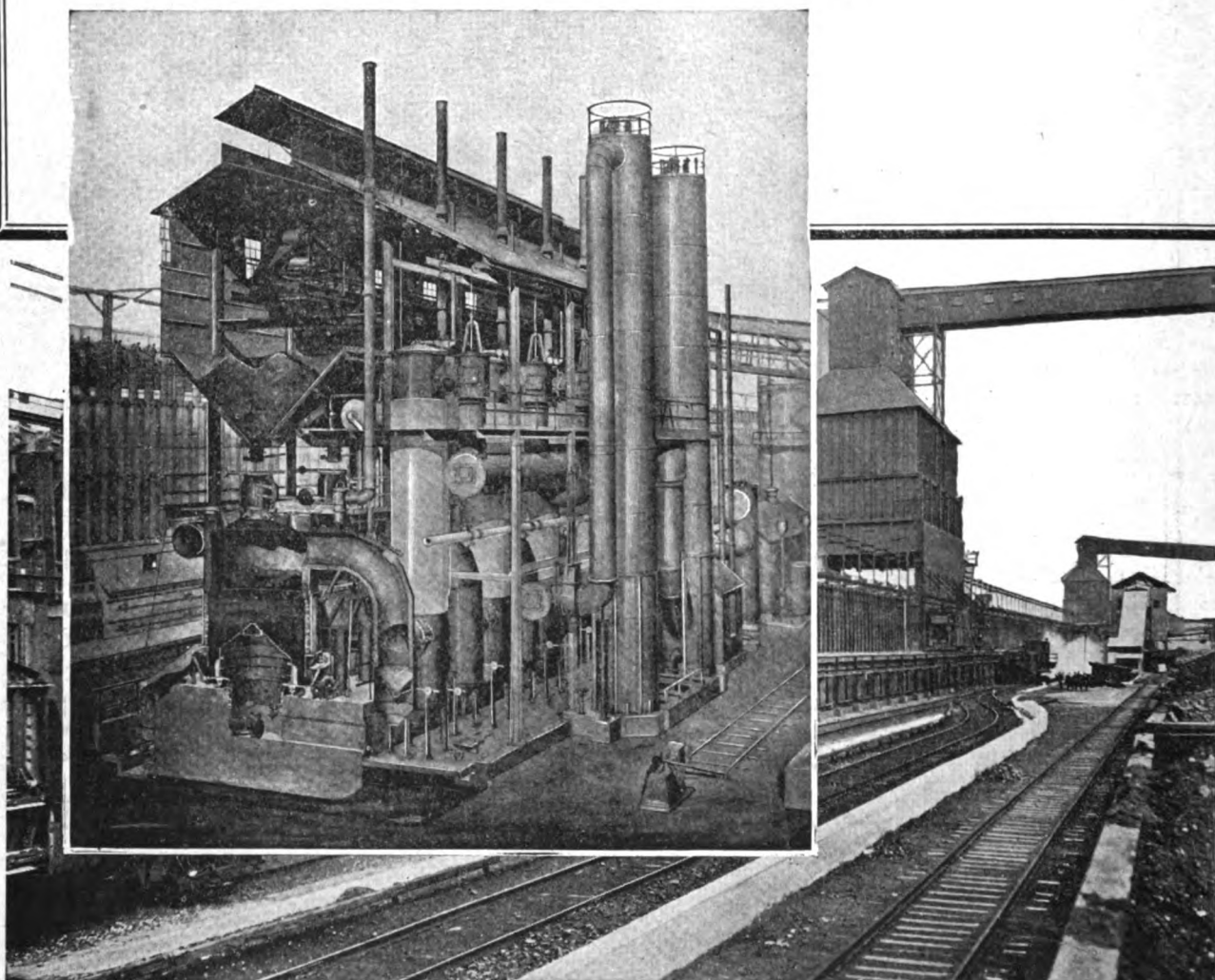
*Costs No More to Buy the Better Product
—Eventually Less*



Co-operate:—Refer to The Blast Furnace and Steel Plant

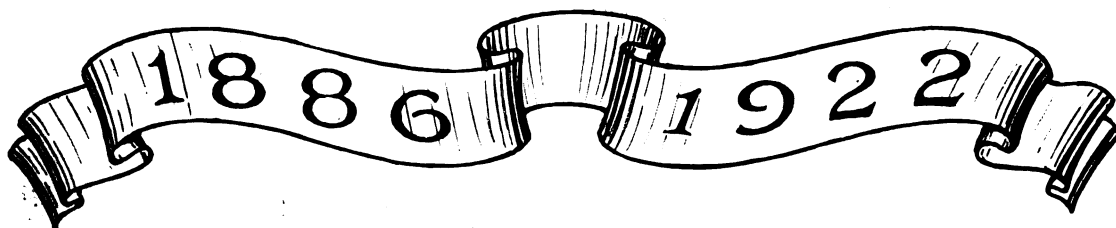
FOR THE STEEL PLANT

**KOPPERS COMBINATION COKE
AND GAS OVENS AND KOPPERS-
KERPELY GAS PRODUCERS**



THE KOPPERS COMPANY
PITTSBURGH, PA.

Co-operate:—Refer to The Blast Furnace and Steel Plant



**We Wish a Prosperous
New Year to the Users and
Prospective Users of**

ASHLAND FIRE BRICK

With the steady increase of business in the steel industry, the year of 1922 promises to be a prosperous one for the operator who can run his plant economically and fill the orders at a profit.

Ashland Fire Brick, because of their uniformity and durability, are proving an economical and efficient fire brick and are meeting with success at the plants in which they are in use.

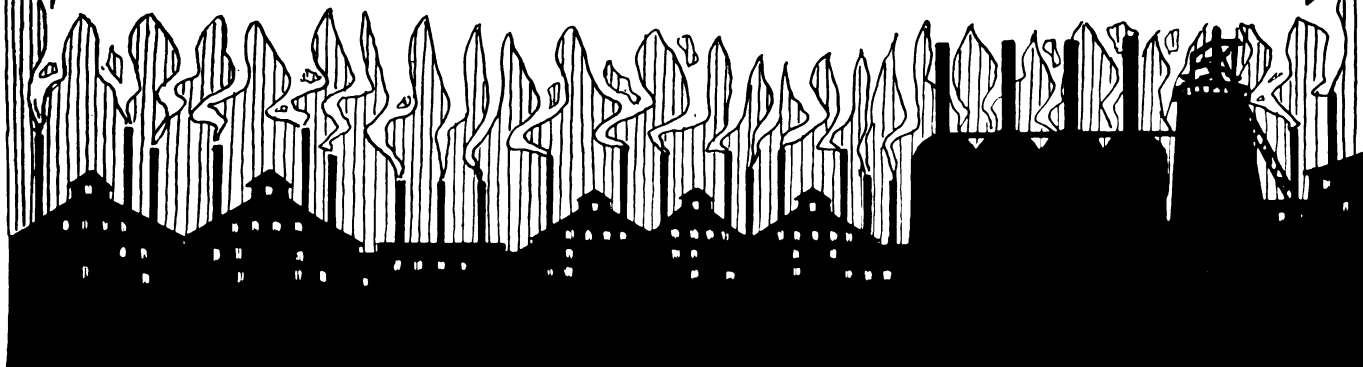
Made from the highly refractory Flint and Semi-Flint Fire Clay taken from the Kentucky soil and treated by the Special Ashland Process, Ashland Fire Clay can be made into bricks adaptable for every requirement in the steel plant.

We are exceptionally well equipped to take care of your problems of special shapes and sizes.

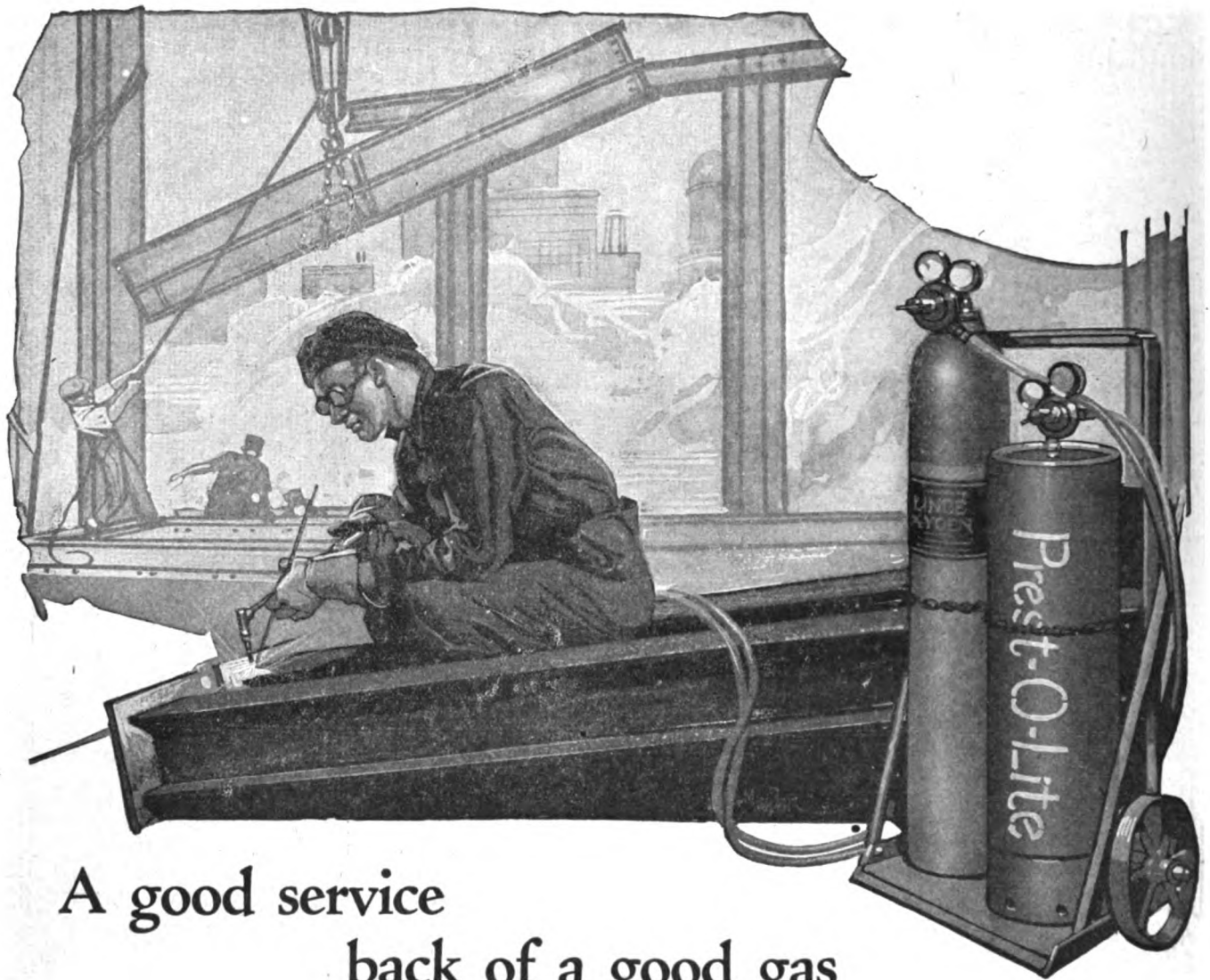
**Ashland Fire Brick Co.
Ashland, Ky.**

Incorporated 1886.

"Line with the Ashland Line"



Co-operate:—Refer to The Blast Furnace and Steel Plant



A good service back of a good gas

PREST-O-LITE Dissolved Acetylene, in conveniently portable cylinders, meets every possible requirement of welders and cutters. Anywhere throughout the country, anytime, for any sort of work

Prest-O-Lite

DISSOLVED ACETYLENE

is instantly available whether the need be for one cylinder or a thousand.

This system of distribution in portable containers is so flexible in its operation that Engineers and Contractors may be sure of a prompt supply of highly pure acetylene no matter what the location of the job.

Forty plants and warehouses covering the United States make Prest-O-Lite Service a *real service*—worthy of the most satisfactory welding and cutting gas.

THE PREST-O-LITE COMPANY, Inc.

General Offices : Carbide and Carbon Building, 30 East 42nd St., New York

Balfour Building San Francisco

In Canada : Prest-O-Lite Co. of Canada, Limited, Toronto

PW520-21

Co-operate:—Refer to The Blast Furnace and Steel Plant



**HIGH GRADE
FIRE CLAY and SILICA BRICK**

**LYON BRAND
FIRST QUALITY SILICA BRICK**

**SALINA BRAND
FIRST QUALITY FIRE BRICK**

**YOUGH BRAND
SPECIAL SILICA BRICK for Coke
Works and Heating Furnaces**

Shippers of
GANISTER

THE KIER FIRE BRICK CO.

Bell Phone **2244 Oliver Bldg., Pittsburgh, Pa.** P. & A. Phone
Grant 957 Main 1131

Fire Brick Works, Salina, Pa. Conemaugh Div. P. R. R.

Silica Brick Works, Childs, Pa. Youghio. Div. P. & L. E.

**Ganister Quarries, Brookes Mills, Blair Co., Pa.
Middle Div. P. R. R.**

Co-operate:—Refer to The Blast Furnace and Steel Plant

BUY IT FROM THE NAVY

Naval Vessels as Hulks for Salvage

By Sealed Proposals opening January 16, 1922
At Board of Survey, Appraisal and Sale,
Navy Yard, Washington, D. C.

Improvements in Naval construction have rendered these fine old warships obsolete, and the opportunity is now being given the metal trades to purchase for salvage the following vessels:

Some of the Vessels Offered for Salvage

(Note.—Displacement given below is for full load.)

- | | |
|--|--|
| <p>U. S. S. MAINE (Battleship). Built in 1901.
Length, 393 feet; draft, 23 feet; beam, 72 feet.
Displacement, 13,500 tons. Now at Philadelphia, Pa.</p> <p>U. S. S. MISSOURI (Battleship). Built in 1901.
Length, 394 feet; draft, 24 feet; beam, 72 feet.
Displacement, 13,500 tons. Now at Philadelphia, Pa.</p> <p>U. S. S. WISCONSIN (Battleship). Built in 1898.
Length, 374 feet; draft, 24 feet; beam, 72 feet.
Displacement, 12,150 tons. Now at Philadelphia, Pa.</p> <p>*U. S. S. BROOKLYN (Cruiser). Built in 1895.
Length, 402 feet; breadth, 65 feet; draft, 24 feet.
Displacement, 10,068 tons. Now at Mare Island, Calif.</p> <p>*U. S. S. COLUMBIA (Cruiser). Built in 1892.
Length, 413 feet; draft, 23 feet; beam, 58 feet.
Displacement, 7,387 tons. Now at Philadelphia, Pa.</p> <p>U. S. S. MEMPHIS (Cruiser). Built in 1903.
Length, 504 feet; draft, 25 feet; beam, 73 feet.
Displacement, 15,712 tons.
Now a wreck at Santo Domingo, D. R.</p> <p>TARGET (Ex-Monitor PURITAN). Built in 1882.
Length, 299 feet; draft, 18 feet; beam, 60 feet.
Displacement, 6,060 tons. Now at Norfolk, Va.</p> | <p>U. S. S. OZARK (Monitor). Built in 1900.
Length, 255 feet; draft, 13 feet; beam, 50 feet.
Displacement, 3,356 tons. Now at Philadelphia, Pa.</p> <p>TARGET (Ex-Monitor MIANTANOMOH).
Built in 1876.
Length, 263 feet; draft, 14 feet; beam, 55 feet.
Displacement, 3,990 tons. Now at Norfolk, Va.</p> <p>U. S. S. TONOPAH (Monitor). Built in 1900.
Length, 255 feet; draft, 13 feet; beam, 50 feet.
Displacement, 3,356 tons. Now at Philadelphia, Pa.</p> <p>*U. S. S. SMITH (Destroyer). Built in 1909.
Length, 294 feet; draft, 8 feet; beam, 26 feet.
Displacement, 902 tons. Now at Philadelphia, Pa.</p> <p>*U. S. S. ALBERT BROWN (Fish Boat). Built in 1897.
Length, 103 feet; draft, 10 feet; beam, 18 feet.
Gross tonnage, 108 tons. Now at Philadelphia, Pa.</p> <p>U. S. S. ORIOLE (Ex-DALE); Wooden Sailing Vessel. Built in 1839.
Length, 117 feet; beam, 34 feet.
Now at Coast Guard Depot (S. Baltimore, Md.)</p> |
|--|--|

NOTE—The vessels marked with an asterisk (*) will on December 15, 1921, be offered for sale for "Conversion to Commercial Uses." Such vessels as are not sold on that date will be offered on January 16, 1922, for sale as "Hulks for Salvage."

The offer of these vessels by the Navy Department for sale to commercial organizations should be considered from the standpoint of a nucleus to go into the ship breaking up field for some **"far-sighted concern" looking for new business.**

Aside from the ferrous and non-ferrous metals entering into Naval ship construction, consider the electrical machinery, pumps, winches, boilers, engines, piping, etc., for which there is always a receptive market with an attractive recovery.

A careful investigation of the success recently achieved in foreign countries by **"ship breaking"** concerns will convince you of the advisability of promptly communicating with the Navy Department.

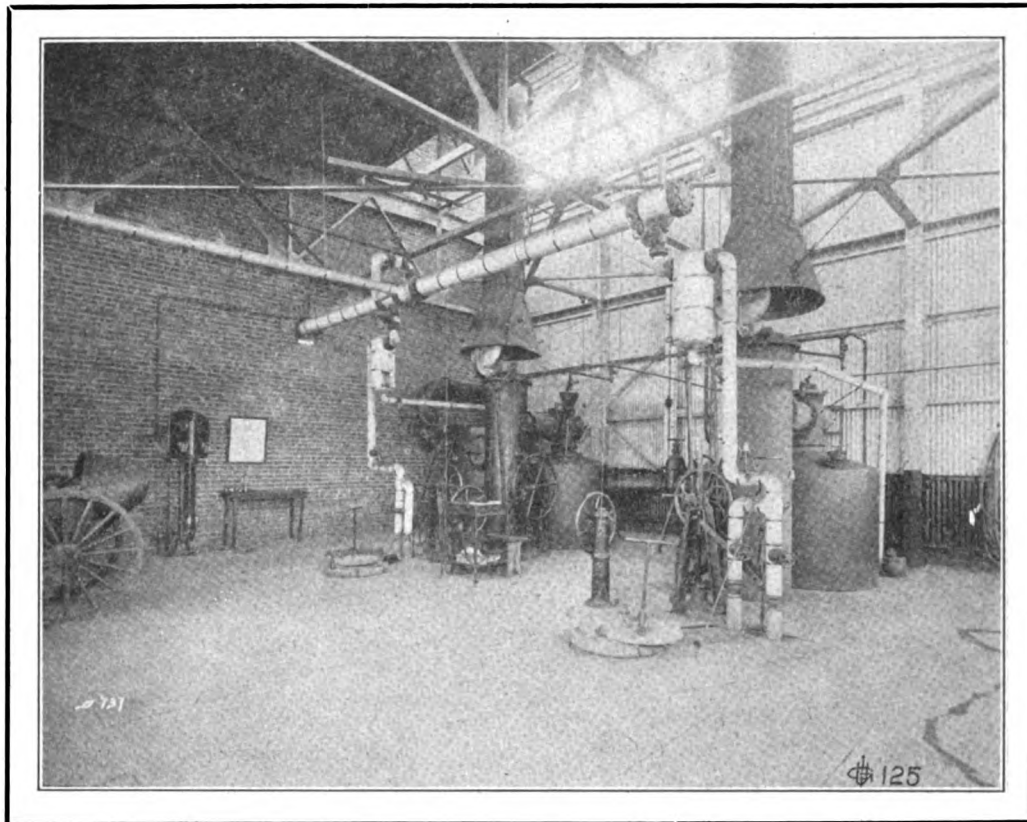
**Write or wire for catalog No. 25-46b giving the terms of sale
and describing the vessels offered.**

Central Sales Office

NAVY DEPARTMENT **WASHINGTON, D. C.**

Co-operate:—Refer to The Blast Furnace and Steel Plant

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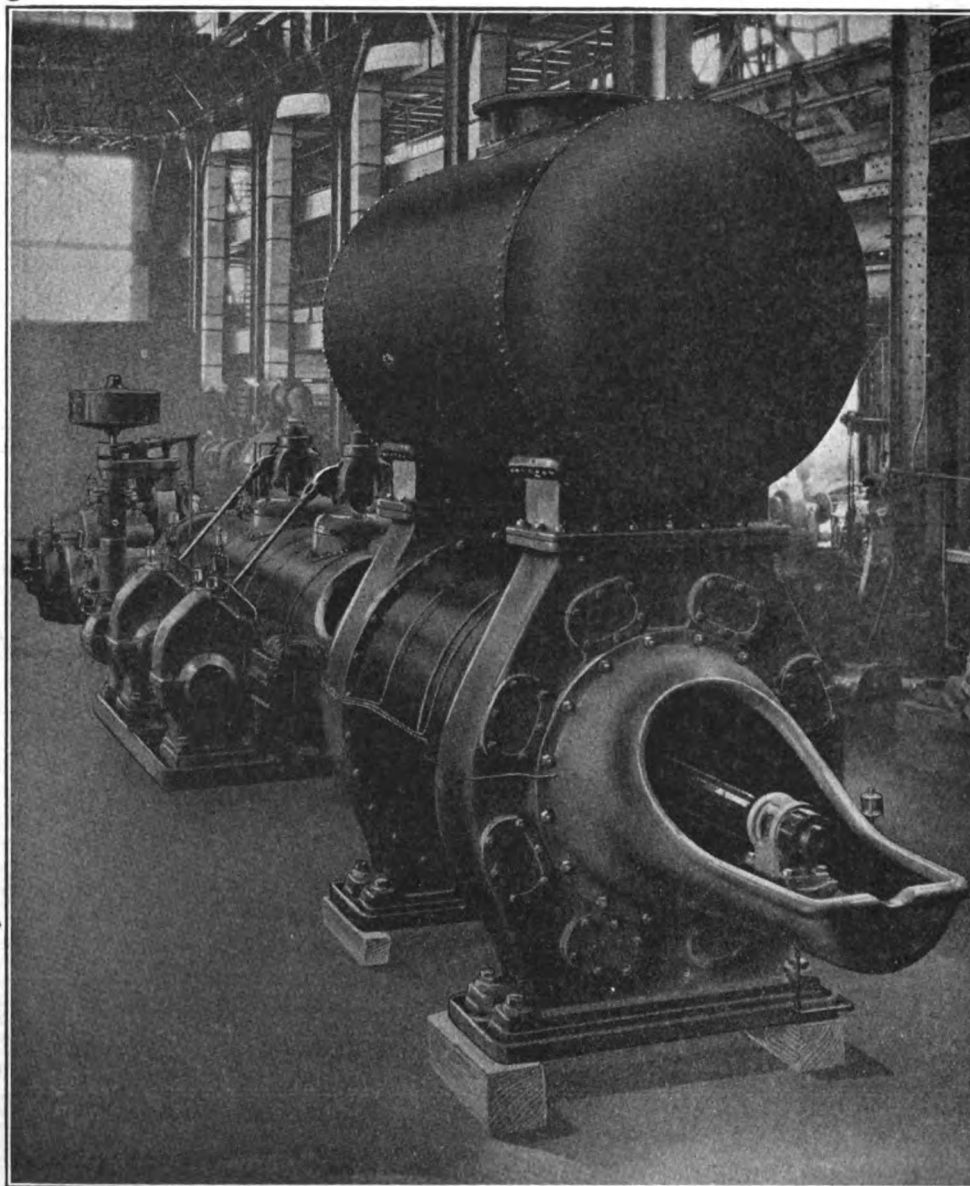


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MESTA

UNA-FLOW TYPE BLOWING ENGINES

(BUILT UNDER STUMPF PATENTS)



Mesta Una-Flow Type Blowing Engine on Erecting Floor.

PRESENTING THE LATEST FEATURES IN BLOWING ENGINE CONSTRUCTION

Simpler in construction and yet more economical in steam consumption than any other type of steam blowing engine.

Especially adapted for high steam pressures and superheat.

Air cylinders equipped with Mesta automatic plate valves (Iversen Patent).

Built in single cylinder or twin cylinder units.

Write for Bulletin "U"

MESTA MACHINE COMPANY
PITTSBURGH **PENNSYLVANIA**

Co-operate:—Refer to The Blast Furnace and Steel Plant

Mackintosh-Hemphill Co.

PITTSBURGH, PA.

DESIGNED and BUILT



TATA IRON & STEEL COMPANY.....	40" Mill
INLAND STEEL COMPANY.....	40" "
UNITED ALLOY STEEL COMPANY.....	35" "
STEEL & TUBE COMPANY OF AMERICA.....	35" "
SHARON STEEL HOOP COMPANY.....	34" "

Note—We have just received order from the Wheeling Steel Corporation for a 35" Blooming Mill and Manipulator for their LaBelle Works, Steubenville, Ohio.

WHY?

These Mills Demanded

"The Best in Rolling Mill Machinery"

INITIAL OUTLAY IS THE ULTIMATE COST

Co-operate:—Refer to The Blast Furnace and Steel Plant

ASHLAND

ASHLAND

ASHLAND FIRE BRICK

When the name Ashland is seen stamped on a fire brick in a steel plant it means that this brick was purchased by one who had in mind a fire brick that would meet the requirements of the various departments of the plant, such as Blast Furnaces, Electric Furnaces, Converters, Open Hearth Furnaces, Welding Furnaces, Annealing Furnaces, etc.

Ashland Fire Brick, made from the highly refractory flint and semi-flint fire clay taken from the Kentucky soil; and when treated by the Special Ashland Process becomes a uniform and durable Fire Brick adaptable for every requirement of the steel plant.

Don't worry over that problem of special shapes and sizes. We are exceptionally well equipped to help you solve it.

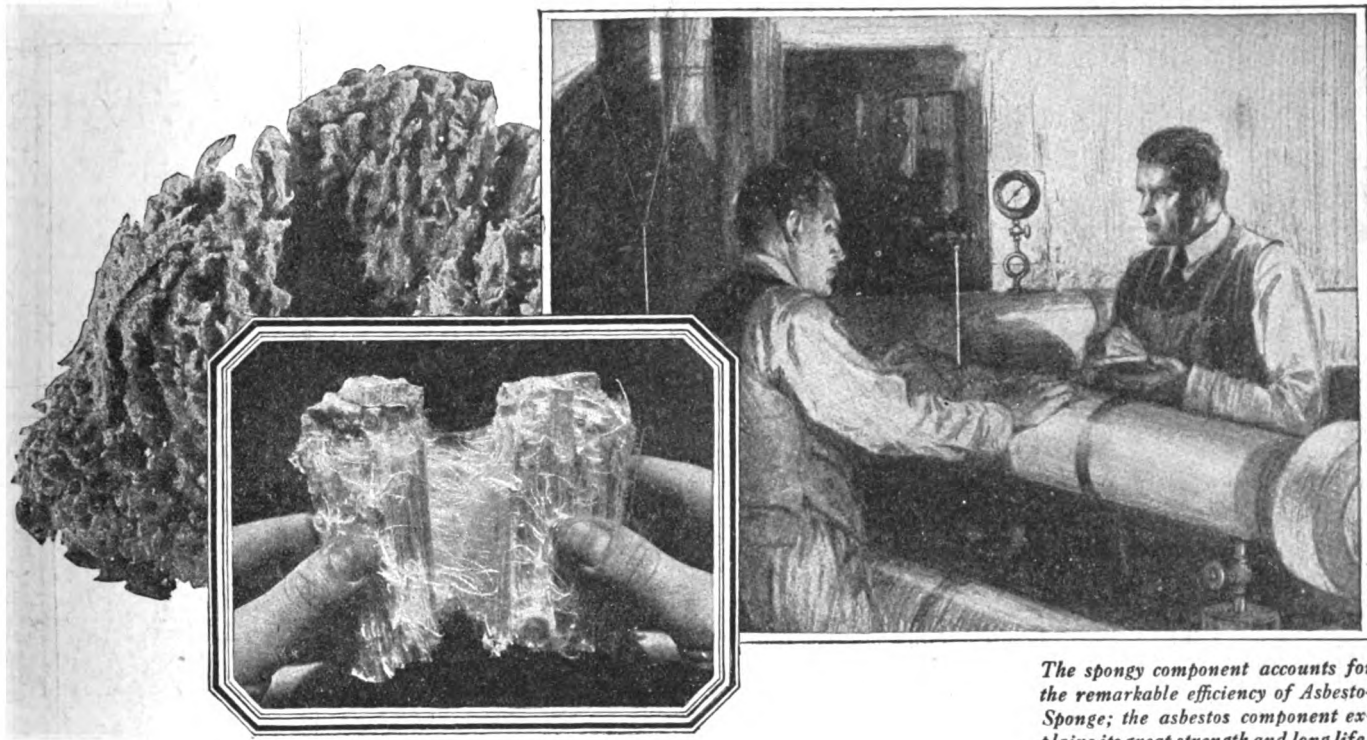
"Line with the Ashland Line"

Ashland Fire Brick Co.

INCORPORATED 1886

Ashland, Kentucky.

Co-operate:—Refer to The Blast Furnace and Steel Plant



The spongy component accounts for the remarkable efficiency of Asbesto-Sponge; the asbestos component explains its great strength and long life.

Dead air— *first aid to live steam*

WHEN your steam pipes show symptoms of falling pressure and high external heat, cover them with Johns-Manville Asbesto-Sponge—the insulation which develops the dead air principle to its fullest extent.

The base of Asbesto-Sponge is asbestos, with which is mixed a spongy material whose countless dead-air cells form a natural barrier to heat. This insulating property is greatly strengthened by the laminated construction of the covering, for between the layers are dead-air spaces which

also check heat loss. But it is not enough that this insulation should be the most efficient on the market.

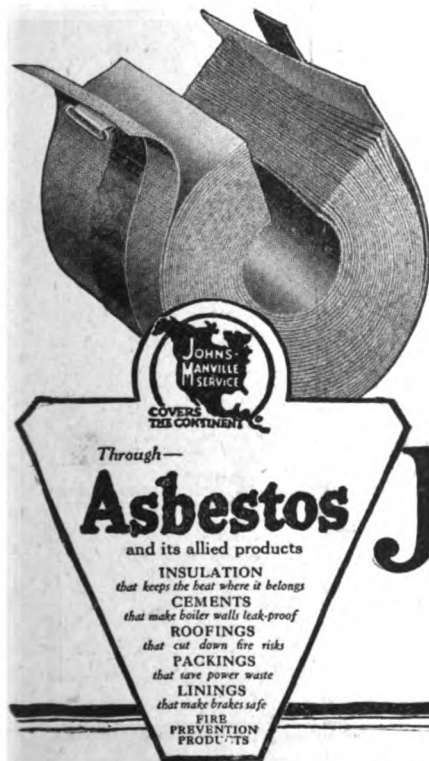
The fibres of asbestos, felted and bonded together with the sponge into tough, resilient layers, assure strength and protection. Asbesto-Sponge does not crumble under vibration, and it stands up under the hard knocks which prove disastrous to insulations of the moulded type.

In many cases Asbesto-Sponge actually outlasts the pipe it covers.

JOHNS-MANVILLE Inc., Madison Avenue, at 41st Street, New York City

Branches in 60 Large Cities

For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto



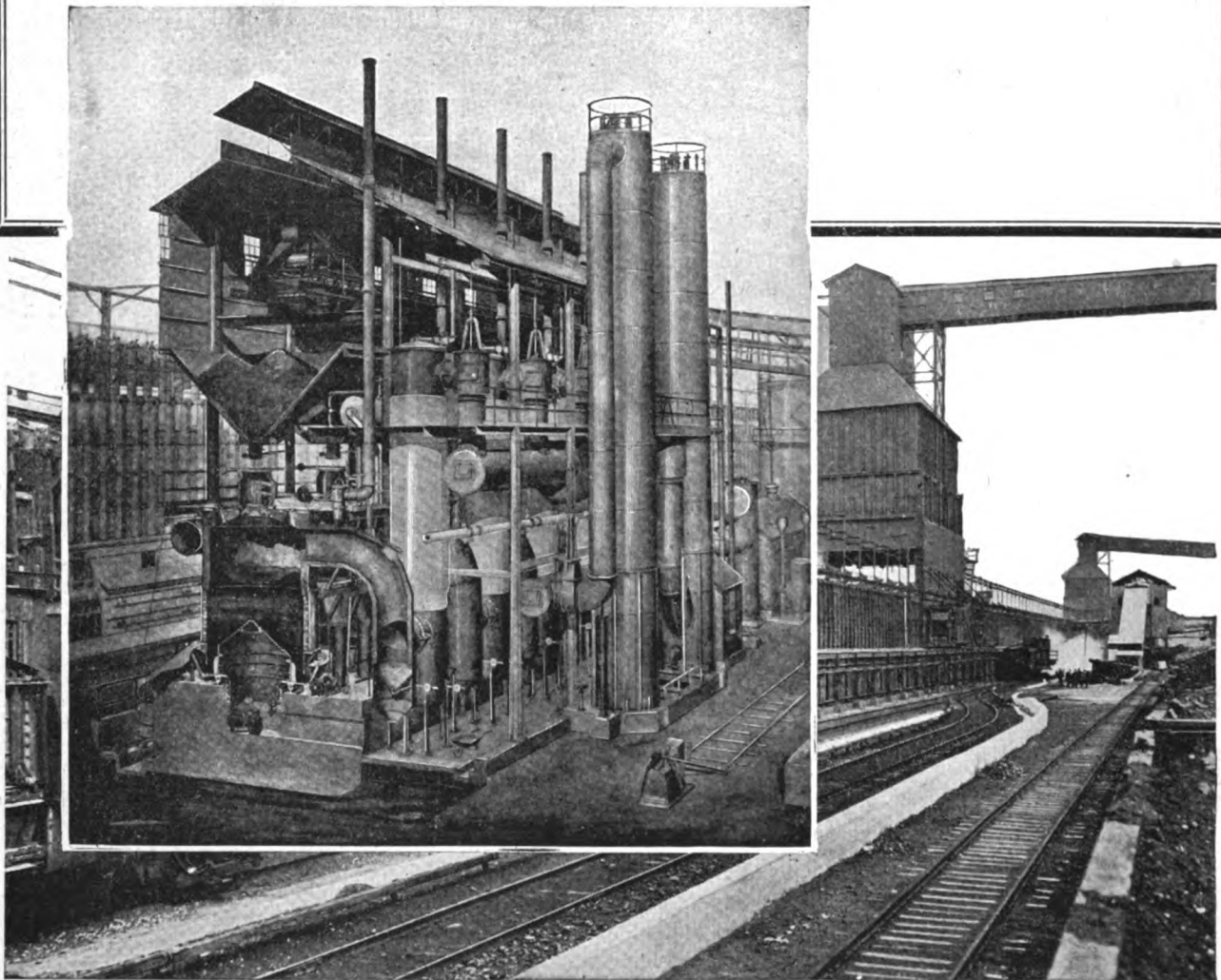
JOHNS-MANVILLE

Power Plant Materials

Co-operate:—Refer to The Blast Furnace and Steel Plant

FOR THE STEEL PLANT

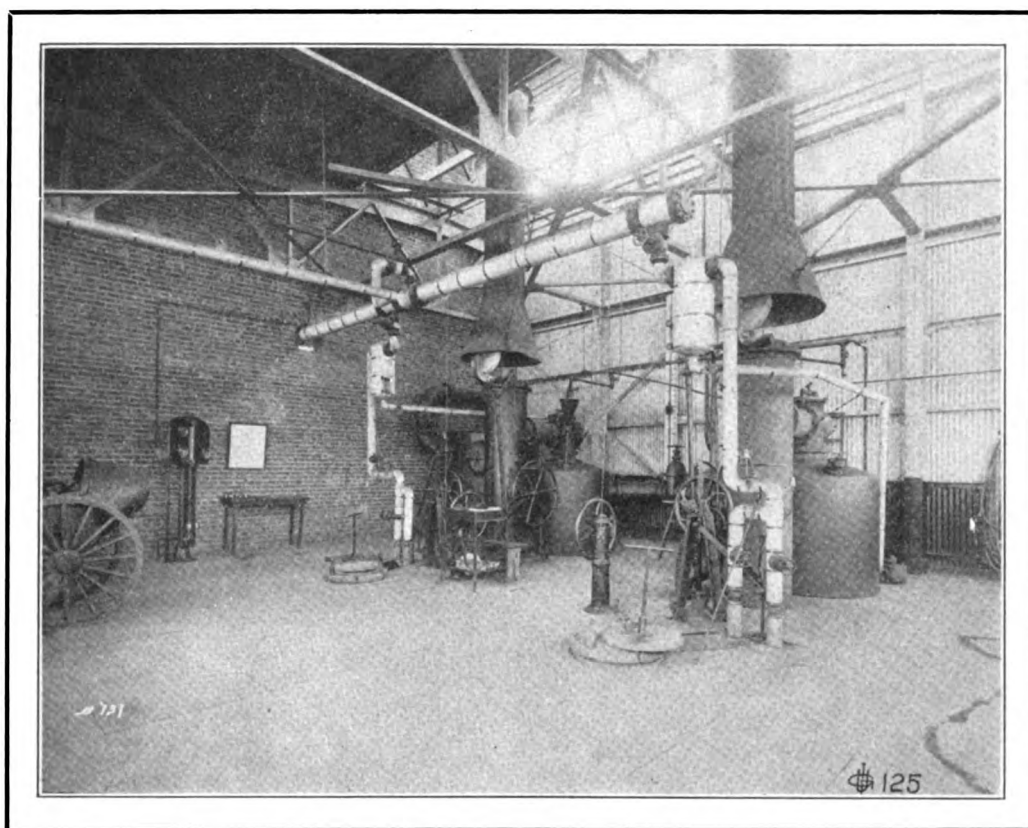
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AND GAS OVENS AND KOPPERS-
KERPELY GAS PRODUCERS



THE KOPPERS COMPANY
PITTSBURGH, PA.

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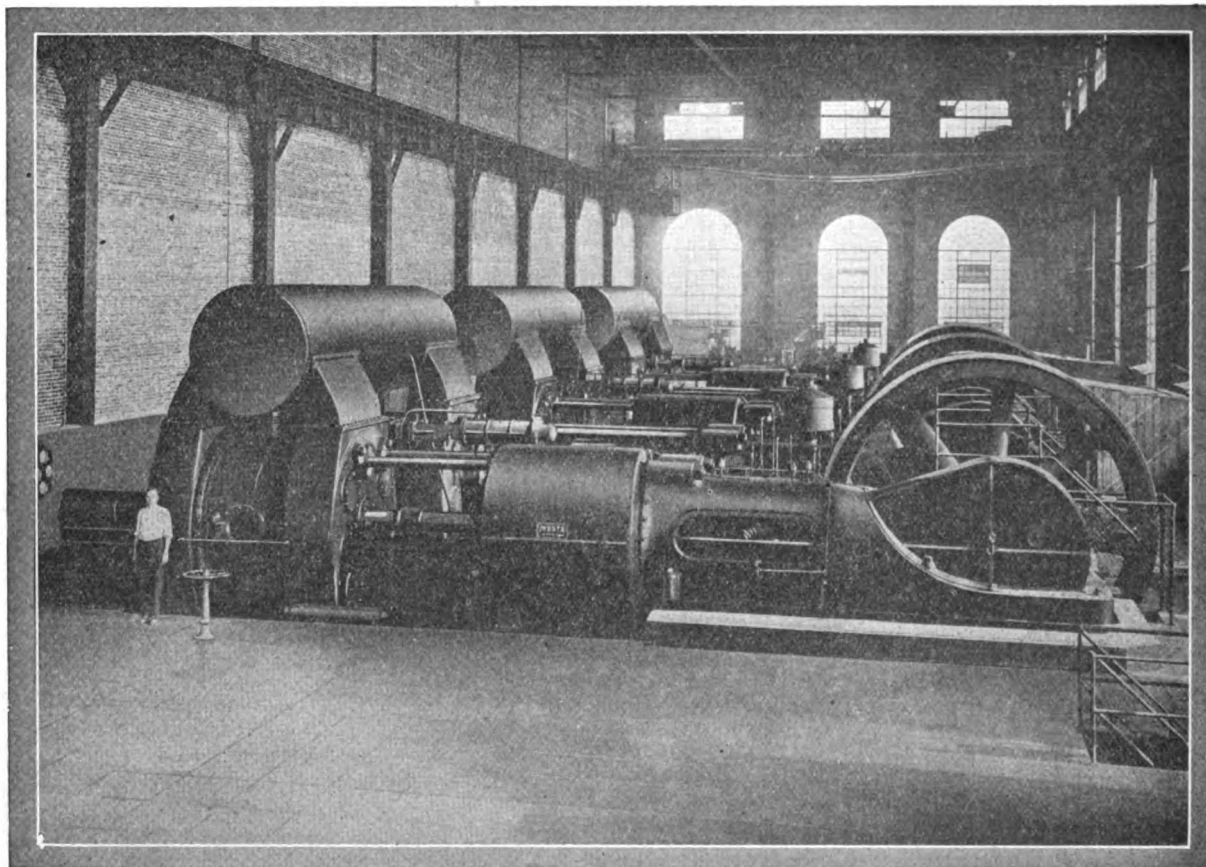
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Broad and Arch Sts., Philadelphia
335 Peoples Gas Bldg., Chicago 928 Union Arcade, Pittsburgh



Co-operate:—Refer to The Blast Furnace and Steel Plant

M E S T A



View showing Installation of Three 34" and 66" and 84" and 84"x48" Mesta Steam Blowing Engines.

STEAM BLOWING ENGINES OVER 90 PER CENT

Of all engines built in this country within the
last eight years for blowing blast furnaces were

MESTA BLOWING ENGINES

Equipped with

MESTA AUTOMATIC PLATE VALVES

MESTA MACHINE COMPANY

GENERAL OFFICE AND WORKS, WEST HOMESTEAD, PENNSYLVANIA
(MAIL ADDRESS: BOX 1124, PITTSBURGH)

Manufacturers of

Gas and Steam Power Engines, Blowing Engines, Rolling Mill Machinery, Forging Presses, Gear and Rope Drives, Barometric Condensers and Vacuum Pumps, Air Compressors, Pickling Machines, Cut and Machine Molded Gears and Rolling Mill Pinions, Iron and Steel Castings, Rolls, Forgings, Forging Ingots, Forging Billets, etc.

BRANCH OFFICES

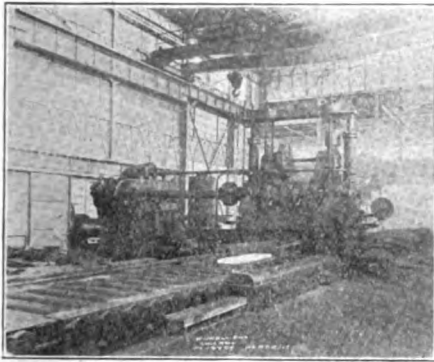
New York
Singer Bldg.

Pittsburgh
Oliver Bldg.

Chicago
McCormick Bldg.

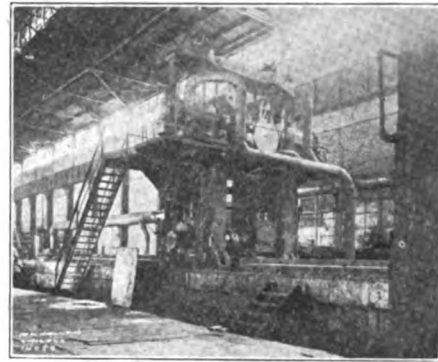
Washington, D. C.
Munsey Bldg.

Co-operate:—Refer to The Blast Furnace and Steel Plant



50"x42" 2-high Rev. Universal Plate Mill,
Steel & Tube Co. of America.

Equip Your
Mill With
**M-H
PATENT
UNIVERSAL
COUPLINGS**

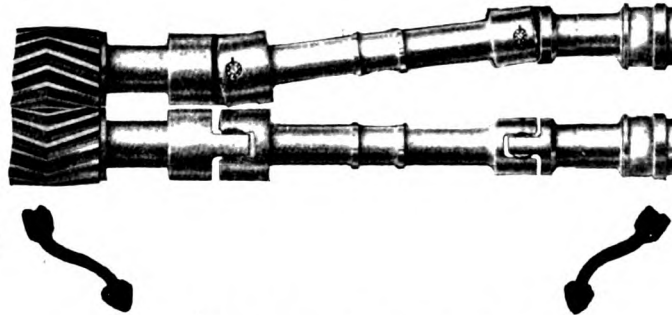


40" Blooming Mill, Inland Steel Co.

BLOOMING MILLS

Equipped with M-H
Co. Universal
Couplings

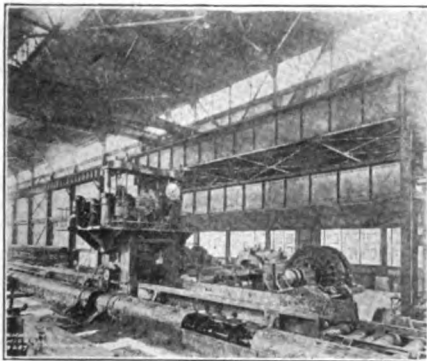
Inland Steel Co.	40"
Tata I. & S. Co.	40"
Trumbull S. Co.	35"
Steel & Tube Co.	35"
United Alloy Steel Co.	35"



UNIVERSAL MILLS

And Other Types
Equipped with
M-H Universal
Couplings

Jones & Laughlin Co.	32"
Dominion F. & S. Co.	27"
Steel & Tube Co.	30"
Billet Mill	28"
Lackawanna S. Co.	33"
Kiushu	24"



35" Blooming Mill, Steel & Tube Co.

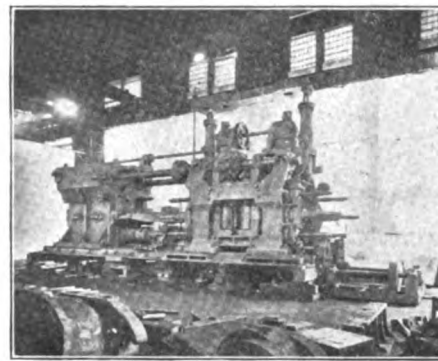
The Most Simple of all
Universal Couplings

Proved by Years of
Heavy Duty Mill
Service as

Absolute in Reliability
Minimum Repairs

Noiseless in Operation

Pays for Its Installation
in a Very Few Months



27" 2-high Universal Plate Mill,
Dominion Foundry & Steel Co.

***Let Us Give You a Price on Equipping Your
Old Mill With M-H Universal Couplings***

Mackintosh-Hemphill Co.
PITTSBURGH, PA.

"The Best in Rolling Mill Machinery"

Co-operate:—Refer to The Blast Furnace and Steel Plant



We have prepared these Booklets for your information.

Your copies mailed on request.

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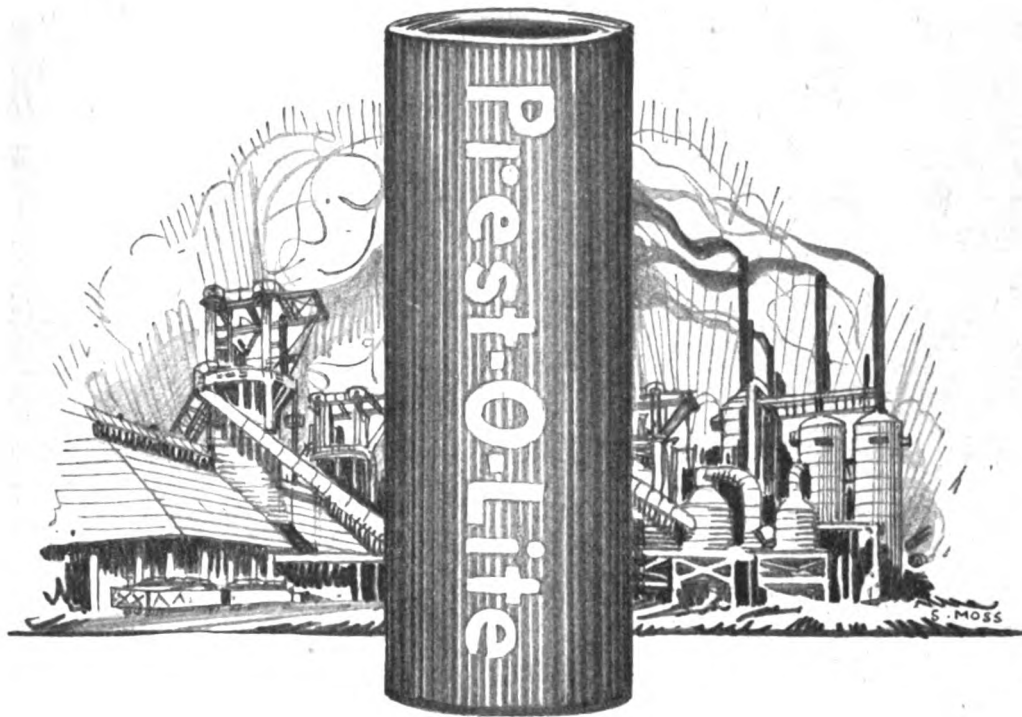
Incorporated 1886

"Line with the Ashland Line"



Co-operate:—Refer to The Blast Furnace and Steel Plant

Read on this page, from issue to issue, a description of the features which have made Prest-O-Lite a national institution



The Test of Time

In the years since Acetylene first became a commercial product, users of the gas welding and cutting process have been offered many substitute fuel gases. Unwarranted claims for these substitutes have failed to stand the test of time and actual performance.

PREST-O-LITE

Dissolved Acetylene Service, from a small beginning, has grown until it spans the continent. New distributing stations are constantly being established.

This growth results from a product and service that have been the logical answers to the steadily growing demand for a supply of fuel gas in portable form that is at once safe, convenient, economical and dependable.

An inquiry to our nearest District Sales Office will bring you information about our latest sales and service plans.

Each Prest-O-Lite user look to his nearest District Sales Office not merely for arrangements to adequately cover Acetylene needs, but for helpful co-operation and advice on any matter involved in the use of Acetylene.

THE PREST-O-LITE COMPANY, Inc.

General Offices: Carbide and Carbon Building, 30 East 42nd Street, New York
Balfour Building, San Francisco; In Canada: Prest-O-Lite Co. of Canada, Toronto

DISTRICT SALES OFFICES

Pittsburgh
Buffalo
Milwaukee

Chicago
Cleveland
Atlanta

San Francisco
Dallas
Philadelphia
New York

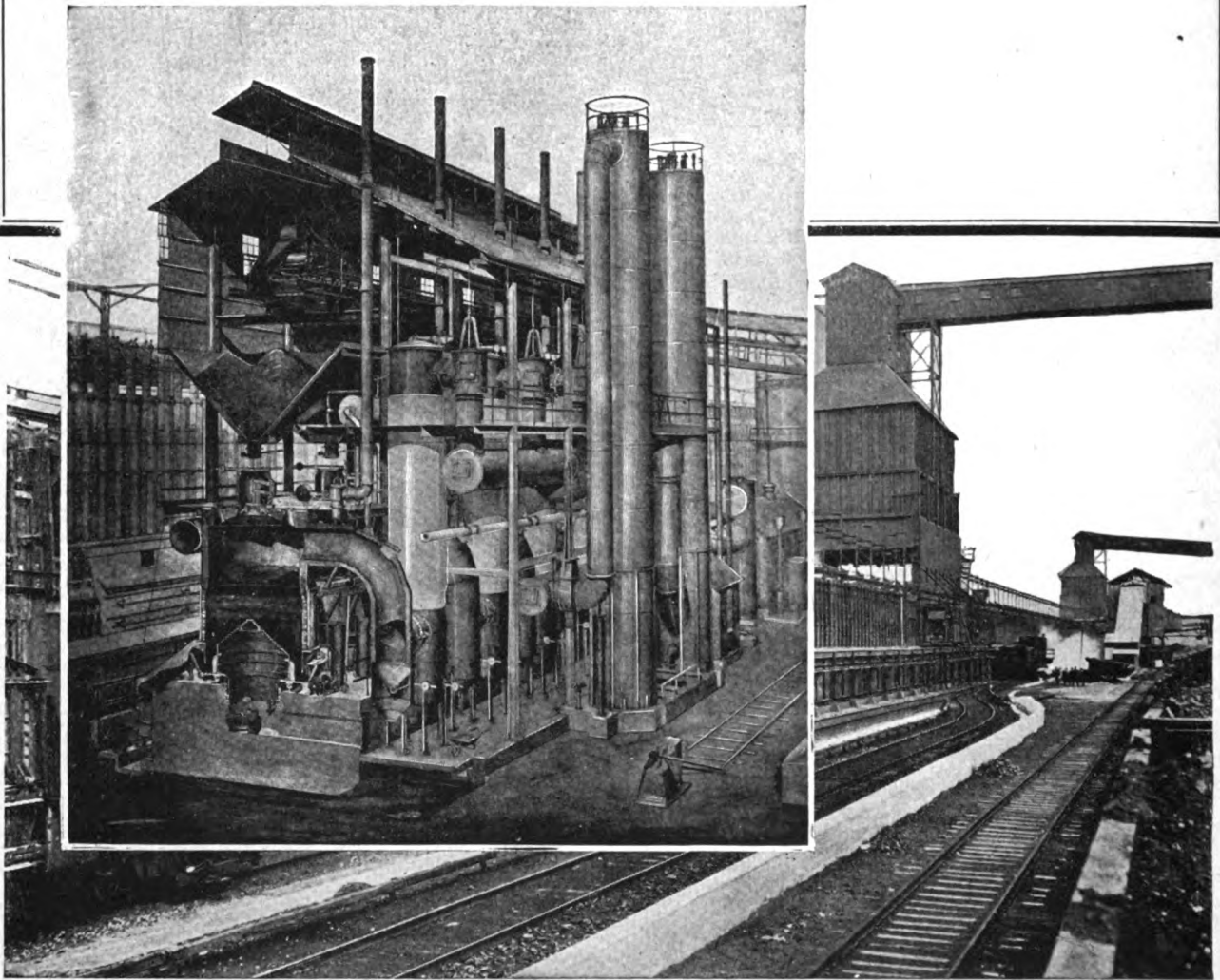
St. Louis
Boston
Detroit

Prest-O-Lite
DISSOLVED ACETYLENE

Co-operate:—Refer to The Blast Furnace and Steel Plant

FOR THE STEEL PLANT

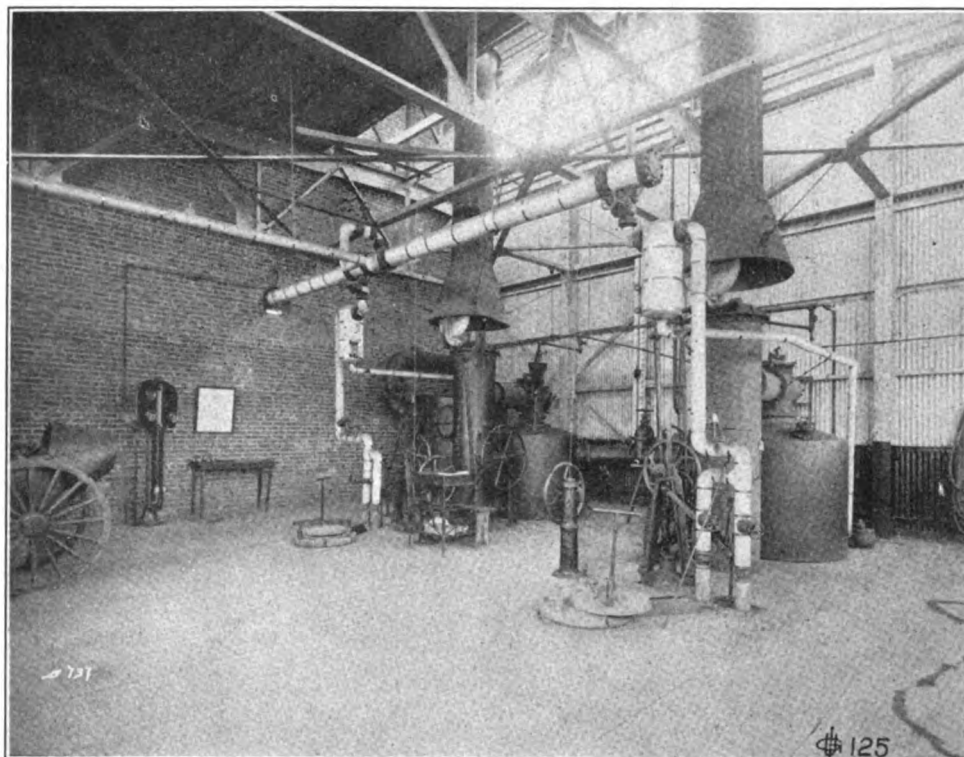
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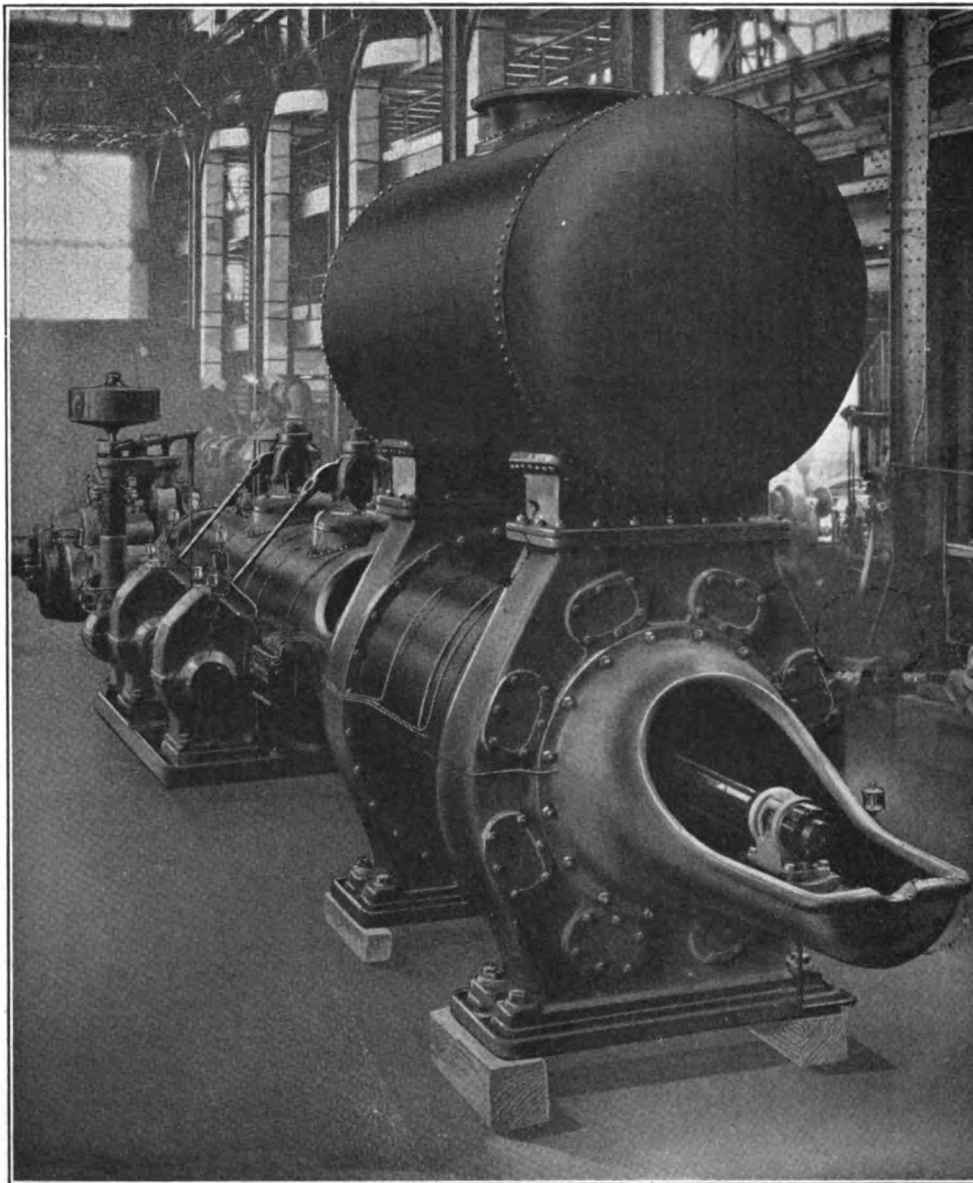


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Air cylinders equipped with Mesta automatic plate valves (Iversen Patent).

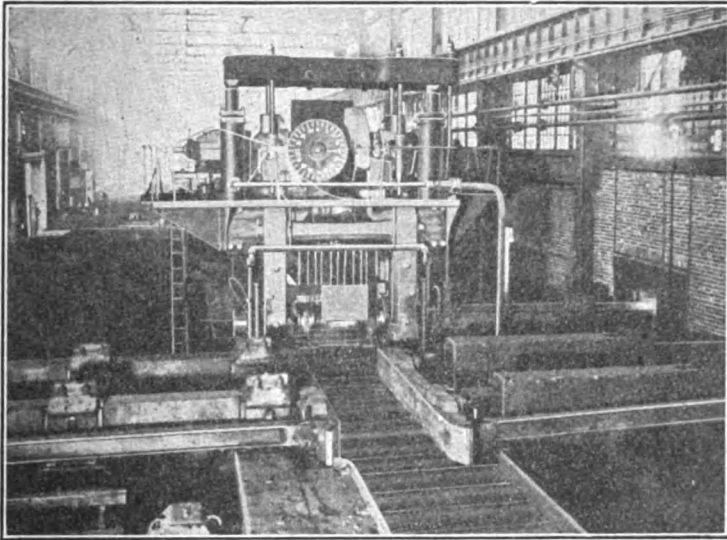
Built in single cylinder or twin cylinder units.

Write for Bulletin "U"

MESTA MACHINE COMPANY
PITTSBURGH **PENNSYLVANIA**

Co-operate:—Refer to The Blast Furnace and Steel Plant

Modernize Your Blooming Mill M-H Co. Patent Manipulator



(Showing Manipulator ready for ingot)

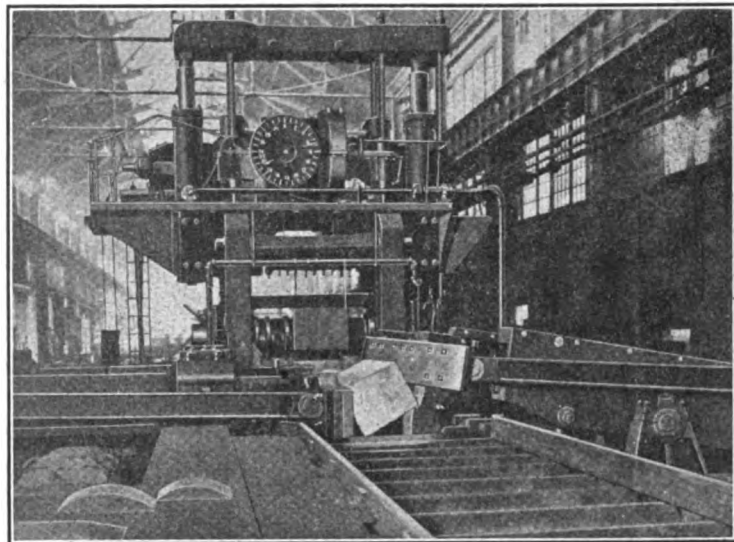
What it is—

The M-H. Co. Patent Manipulator **combines** a Side Guard and Finger Manipulator with **no parts** under table. It is entirely independent of tables, away from scale and accessible to cranes.

Operated Electrically or Hydraulically

What it does—

It fills a long felt want for a rapid and positive manipulator that saves **time**—eliminates break-downs, increases tonnage and assures uniform product. It also reduces to a minimum the **wear** and **tear** of mill tables.



(Showing turning of ingot by tilting unit)

Pictures show installation at Lowellville plant, Sharon Steel Hoop Co.

Mackintosh-Hemphill Co.
Pittsburgh, Pa.

Co-operate:—Refer to The Blast Furnace and Steel Plant

One or More of These Booklets Should be of Interest to You

The Ashland Fire Brick Company, ever anxious to assist the operating officials with their fire brick problems have prepared a number of booklets which cover the various uses of fire brick in the steel industry.

We believe these booklets will prove a real help in making the proper selection of Ashland Fire Brick for its particular use and would urge you to write today requesting the copies you would be most interested in.

Ashland Fire Brick is adaptable for every requirement in the steel plant. Made from the highly refractory Flint and Semi-Flint Kentucky Fire Clay, and treated by the

Special Ashland Process, this clay is formed into uniform and durable Fire Brick and when used properly will give more than satisfactory results.

We are exceptionally well equipped to take care of your problem of Special Shapes and Sizes.

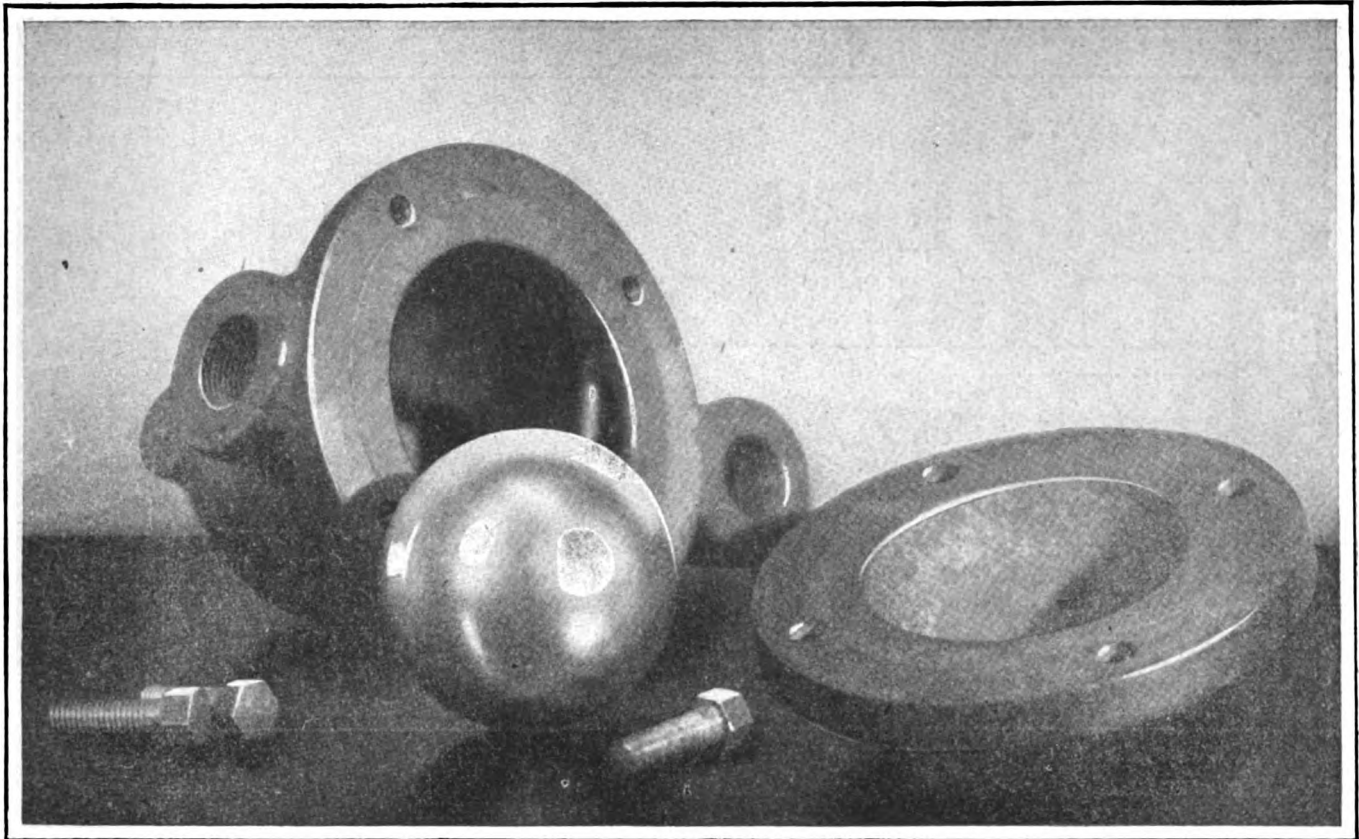


**Ashland
Fire Brick
Company**
Ashland, Ky.

Inc. 1886

***"Line with the
Ashland Line"***

Co-operate:—Refer to The Blast Furnace and Steel Plant



The simplest Steam Trap made

HERE is a steam trap that operates as simply and positively as a cartwheel. The Johns-Manville Steam Trap has just three parts.

Only one part moves—a hollow copper ball. This ball does all the work of the complicated mechanism of floats, levers, valves, springs and weights found in other traps. The difference is that, being simple, it cannot get out of order.

Five years ago when this trap was new, some men shied at this simplicity.

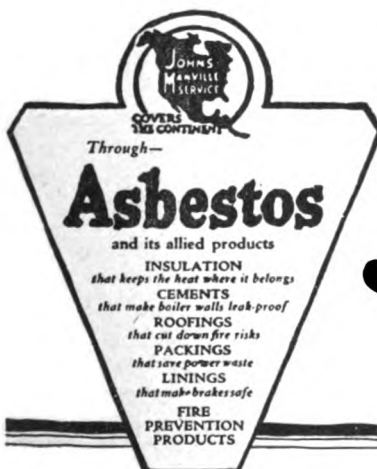
But now, thousands of Johns-Manville Steam Traps are in service and their owners are coming back for more because the trap works; not just as well as other traps—but better. And of course, being simple, it is inexpensive.

Convince yourself—ask the man who uses them, or send for booklet.

JOHNS-MANVILLE Inc., Madison Ave. at 41st St., New York City

Branches in 57 Large Cities

For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto



JOHNS-MANVILLE

Power Plant Materials

Co-operate:—Refer to The Blast Furnace and Steel Plant

KOPPERS COMBINATION OVENS



NO STEEL COMPANY can say with certainty what its requirements of coke or gas will be during a span of fifteen years, which is generally accepted as the life of the brickwork in a by-product coke oven plant. Particularly the amount of cold, clean coke oven gas that may be required.

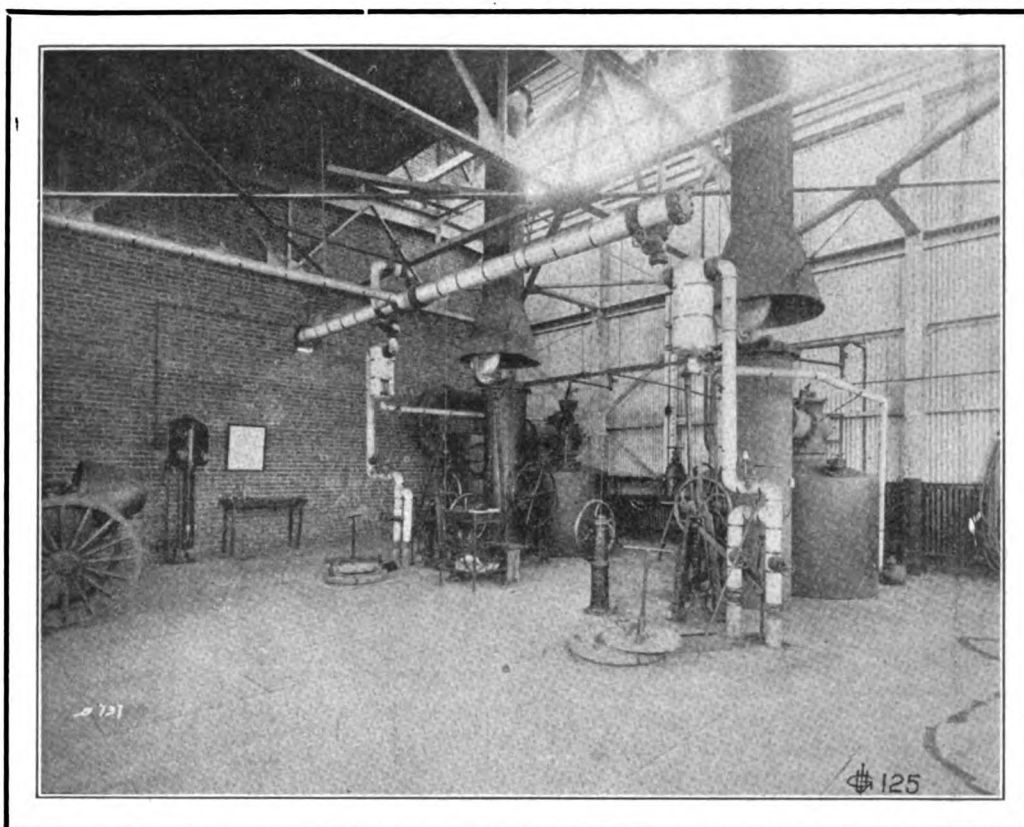
New uses to which such gas may be put are constantly arising. Statistics show that the percentage of increase in the amount of coke oven gas required for steel plant operation far exceeds the increase in the amount of coke required.

In building a by-product coke plant this must be taken into consideration. Koppers combination coke and gas ovens, which can be heated with oven gas, producer gas, blast furnace gas or blue water gas are your insurance against such a contingency.

THE KOPPERS COMPANY
PITTSBURGH

Co-operate:—Refer to The Blast Furnace and Steel Plant

THIS
BLUE GAS APPARATUS
IS LOCATED AT THE
BLAW-KNOX COMPANY'S PLANT
ITS PRODUCT IS BEING SUCCESSFULLY USED FOR MANY
INDUSTRIAL PURPOSES



U. G. I. BLUE GAS PLANTS

CAN BE BUILT IN LARGE OR SMALL CAPACITIES
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335 Peoples Gas Bldg., Chicago

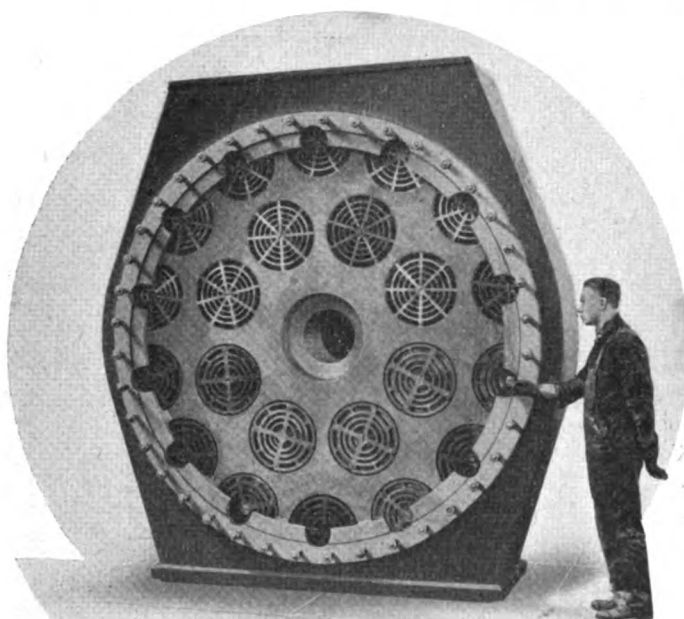
928 Union Arcade, Pittsburgh



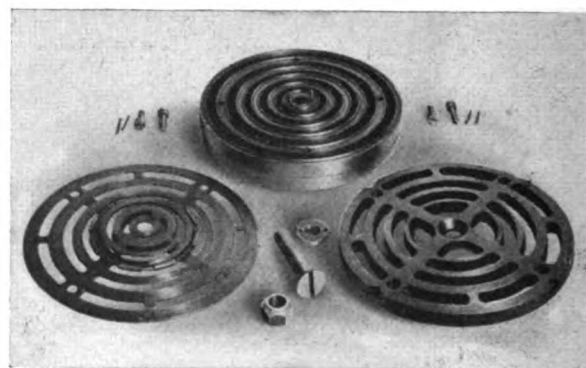
Co-operate:—Refer to The Blast Furnace and Steel Plant

MORE THAN 1100 AIR HEADS
—and—
20 Different Makes of BLOWING ENGINES
have been equipped with
“Mesta Automatic Plate Valves”

(Iversen Patent)



BLOWING ENGINE AIR HEAD
 Equipped with Mesta Automatic Plate Valves



Seat, Spring, Plate and Guard of
 Mesta Automatic Plate Valve

**IF YOU ARE USING ANY OTHER
 TYPE OF AIR-VALVES, IT IS
 COSTING YOU MORE TO OPER-
 ATE, WITH LESS AIR DELIVERED**

**YOU CANNOT GET THE MAXIMUM EFFICIENCY FROM
 YOUR BLOWING ENGINES WITHOUT USING**

Mesta Automatic Plate Valves

Manufactured by

Mesta Machine Company
PITTSBURGH, PENNA.

Manufacturers of

Gas and Steam Engines, Blowing Engines, Reversing Engines, Rolling Mill Machinery,
 Forging Presses, Gear Drives, Air Compressors, Condensers, Rolls, Pinions, Cut and
 Machine Molded Gears, Iron and Steel Castings, Forgings, Forging Ingots, etc.

BRANCH OFFICES

New York
 Singer Bldg.

Pittsburgh
 Oliver Bldg.

Chicago
 McCormick Bldg.

Washington, D. C.
 Munsey Bldg.

REPRESENTATIVES

L. R. Coffin
 Holbrook Bldg.
 San Francisco, Cal.

Shook & Fletcher Supply Co.
 Brown-Marx Bldg.
 Birmingham, Ala.

J. B. Corrie & Co.
 15 Victoria St.
 London, England

Mario Tansini, Engr.
 Via S. Marto 10
 Milan, Italy

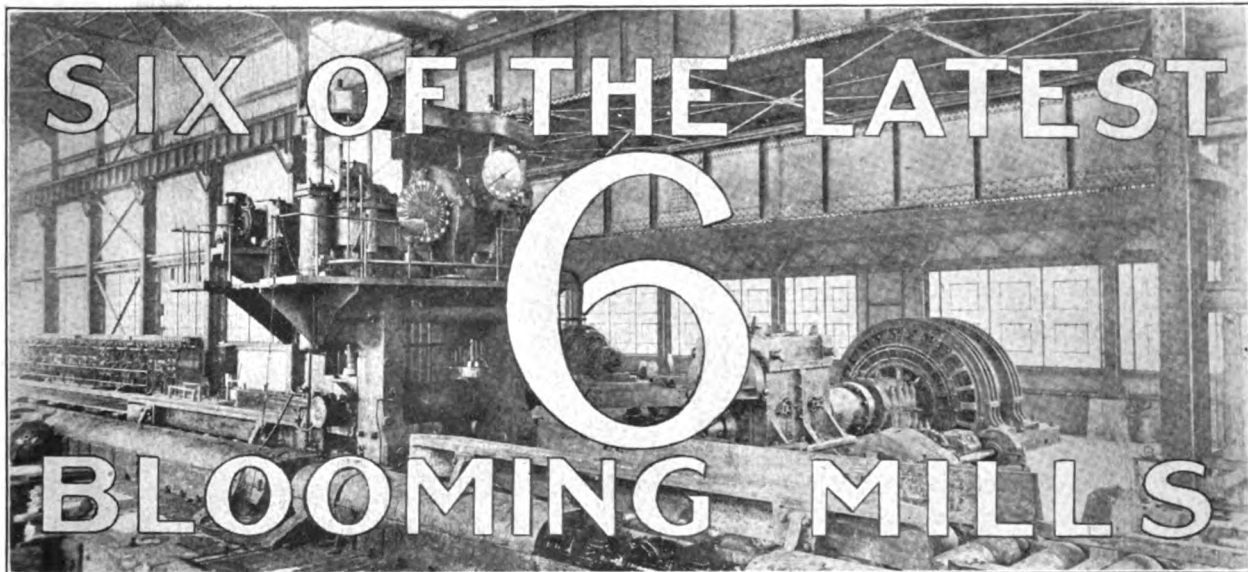
Mitsui & Company, Ltd.
 65 Broadway, New York
 Tokyo, Japan

Co-operate:—Refer to The Blast Furnace and Steel Plant

Mackintosh-Hemphill Co.

PITTSBURGH, PA.

DESIGNED and BUILT



TATA IRON & STEEL COMPANY.....	40" Mill
INLAND STEEL COMPANY.....	40" "
UNITED ALLOY STEEL COMPANY.....	35" "
STEEL & TUBE COMPANY OF AMERICA.....	35" "
SHARON STEEL HOOP COMPANY.....	34" "
WHEELING STEEL CORPORATION.....	35" "

WHY?

These Mills Demanded

"The Best in Rolling Mill Machinery"

INITIAL OUTLAY IS THE ULTIMATE COST

Co-operate:—Refer to The Blast Furnace and Steel Plant

GARY REPORTS DECIDED GAIN IN STEEL TRADE

New Orders Exceed Pre-War Output, Corporation Head Says.

SEES BETTER PRICES

[BY CABLE TIMES PRIVATE WIRE]
(New York Times Service.)

NEW YORK, March 24.—A decided improvement has been witnessed in

Is your house (Blast Furnaces, etc.) in order to meet increased business? Reports from all sections of the country indicate a period of good business in the Steel Industry. Are you lining your furnaces with a brick that will stand up?

ASHLAND FIRE BRICK

Has been making good for 36 years because of its uniformity and durability. Ashland Fire Brick because of its highly refractory qualities caused by the treatment of the Special Ashland Process becomes a Fire Brick that

is adaptable to every department of the Steel Plant and will prove highly satisfactory where used.

We would suggest that you place your order now to allow sufficient time for re-lining and not be delayed with your steel production when the orders begin coming in.

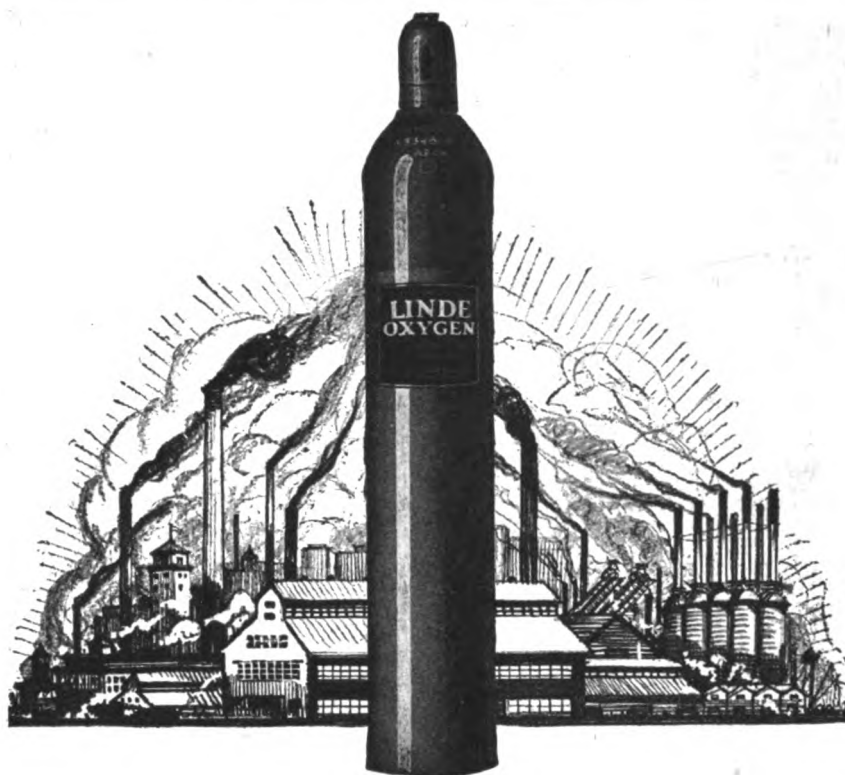
Ashland Fire Brick Co., Ashland, Kentucky

Incorporated 1886

"Line with the Ashland Line"



Co-operate:—Refer to The Blast Furnace and Steel Plant



Concerning Oxygen Purity

The LINDE standard of purity is more than a matter of mere figures. It is three fold:

A minimum purity of 99%.

LINDE plants are in fact producing oxygen of a purity substantially in excess of 99%.

A uniform purity.

Painstaking care to produce oxygen that can always be depended upon to produce uniform results.

An assured purity.

A system of quadruple checking and inspection that not only gives a continuous control of purity during production, but which finally proves the thoroughness of production control.

The efficiency of LINDE OXYGEN fully satisfies the demands of the largest and most exacting users in America.

No oxygen user, large or small, should close an arrangement for oxygen supply without first securing 1922 prices from the nearest LINDE District Sales Office.

For Your Convenience—Distributing Stations at every important industrial center.

At Your Service—District Sales Offices in these cities:

ATLANTA
CLEVELAND
NEW YORK

BOSTON
DALLAS
PHILADELPHIA
SAN FRANCISCO

BUFFALO
DETROIT
PITTSBURGH

CHICAGO
MILWAUKEE
ST. LOUIS

THE LINDE AIR PRODUCTS COMPANY

Carbide and Carbon Building, 30 East 42nd Street, New York

THE LARGEST PRODUCER OF OXYGEN IN THE WORLD

2012-22

Co-operate:—Refer to The Blast Furnace and Steel Plant

New Koppers Oven

For years the Koppers Cross Regenerative by-product coke oven has stood unchallenged, the acknowledged leader. Experience, constant study and research work have made it possible for us to build each new plant a little better than its predecessor, but the basic principle of Koppers' original design has remained unchanged.

It takes a high degree of faith and courage to supersede an oven that has won such universal recognition, but it is with full consciousness of this that The Koppers Company presents to the industry its NEW KOPPERS OVEN.

The perfection of this new oven is the consummation of many years' study and research work, which The Koppers Company has devoted to improving the by-product coke oven practice in this country, and is a striking example of the value of such a company to industry as a whole. A battery of these NEW KOPPERS OVENS has been in operation since the latter part of January at the plant of the Chicago By-Product Coke Company, Chicago, Illinois, on an average coking time under eleven hours, and has been operated on less than ten hours coking time.

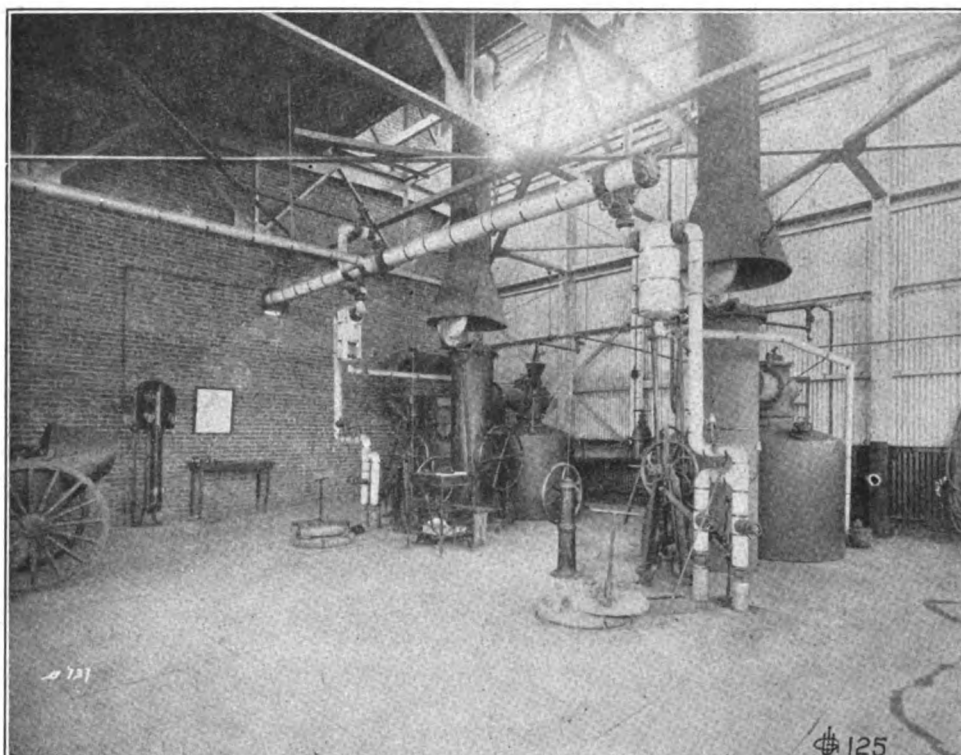
How to attain what is termed the "ideal" distribution of heat, to insure uniform penetration of heat into all parts of the coal charge, has long been the goal of coke oven engineers, and virtually all changes in design in the past five years have been to accomplish this result. The NEW KOPPERS OVEN has achieved this result, producing a coke which will make possible greatly improved blast furnace practice and a materially lower consumption of coke per ton of iron produced.

We unhesitatingly recommend this new oven to our customers. It is our firm belief that this new design will find such favor in the industry that we will never be called on to build another oven of our old design.

The KOPPERS COMPANY
Designers and Builders of
By-Product Coke & Gas Ovens
PITTSBURGH, PA.

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ITS PRODUCT IS BEING SUCCESSFULLY USED FOR MANY
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CAN BE BUILT IN LARGE OR SMALL CAPACITIES
AND PRODUCE A CLEAN, COOL GAS OF HIGH FLAME
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WE STAND READY TO HELP YOU WITH
FACTS AND FIGURES

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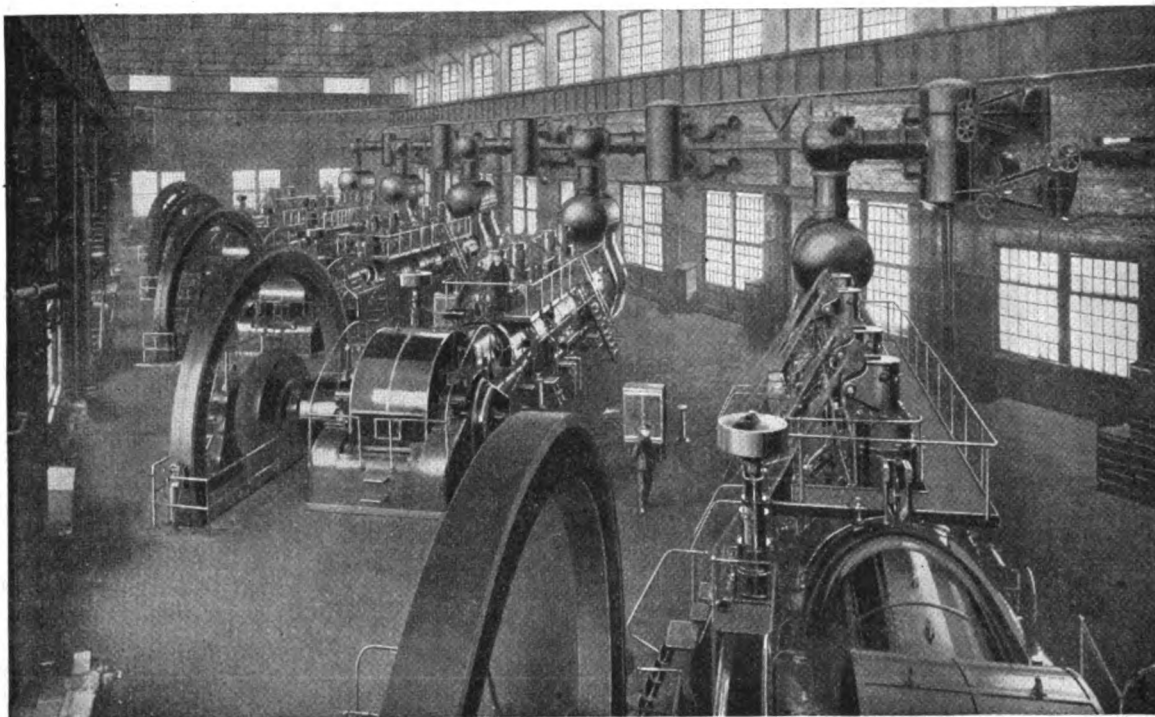
928 Union Arcade, Pittsburgh



Co-operate:—Refer to The Blast Furnace and Steel Plant

MESTA

GAS BLOWING & POWER ENGINES



Installation of Five Mesta Gas Blowing Engines

**UTILIZE YOUR BLAST FURNACE GAS TO
THE BEST ADVANTAGE BY INSTALLING**

MESTA GAS BLOWING & POWER ENGINES

CONSIDER THESE FACTS

The amount of gas liberated from the average Blast Furnace under normal operating conditions is about 150,000 cu. ft. per ton of pig iron production in 24 hours. Of this amount the following distribution is made:

Consumed by hot blast stoves.....	30 to 32%
" " Gas Blowing Engines.....	10 to 12%
" " auxiliaries and loss by leakage	8 to 10%
Surplus Gas—Approximately.....	50%

This surplus gas, when utilized in Gas Engines for the generation of power to be used outside of the Blast Furnace Plant, will deliver, continuously, at least 25 Horse Power per ton of Iron produced, which is more than sufficient to operate the usual Steel Plant.

For reliability and ease of operation, Mesta Gas Engines are equivalent to any steam driven unit.

MANUFACTURED BY

Mesta Machine Company

PITTSBURGH, PA.

MANUFACTURERS OF

Gas and Steam Engines, Blowing Engines, Reversing Engines, Rolling Mill Machinery, Forging Presses, Gear Drives, Air Compressors, Condensers, Rolls, Pinions, Cut and Machine Molded Gears, Iron and Steel Castings, Forgings, Forging Ingots, etc.

BRANCH OFFICES

New York
Singer Bldg.

Chicago
McCormick Bldg.

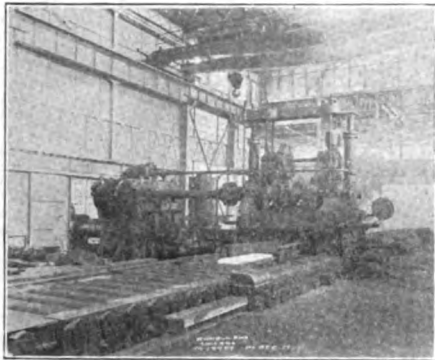
Pittsburgh
Oliver Bldg.

Washington, D. C.
Munsey Bldg.

REPRESENTATIVES

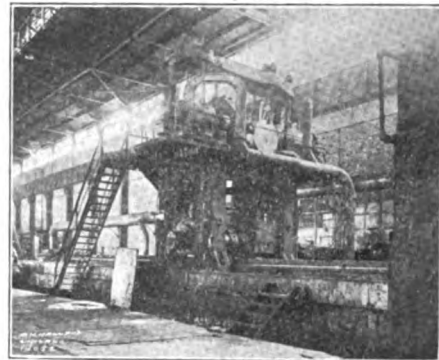
L. R. Coffin Holbrook Bldg. San Francisco, Cal.	Shook & Fletcher Supply Co. Brown Marx Bldg. Birmingham, Ala.	J. B. Corrie & Co. 15 Victoria St. London, England	Mario Tansini, Engr Via S. Marto 10 Milan, Italy	Mitsui & Company, Ltd. 65 Broadway, New York Tokio, Japan
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Co-operate:—Refer to The Blast Furnace and Steel Plant



50"x42" 2-high Rev. Universal Plate Mill,
Steel & Tube Co. of America.

Equip Your Mill With **M-H** PATENT UNIVERSAL COUPLINGS

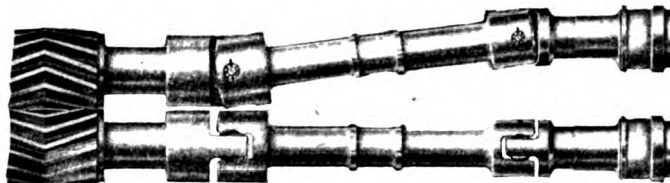


40" Blooming Mill, Inland Steel Co.

BLOOMING MILLS

Equipped with M-H
Co. Universal
Couplings

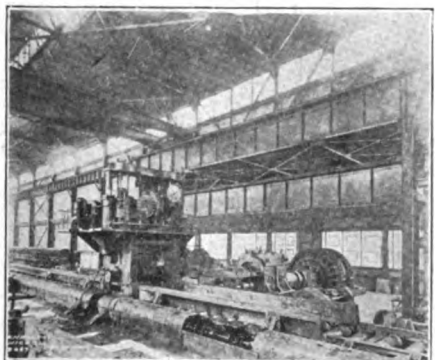
Inland Steel Co. 40"
Tata I. & S. Co. 40"
Trumbull S. Co. 35"
Steel & Tube Co. 35"
United Alloy Steel
Co. 35"



UNIVERSAL MILLS

And Other Types
Equipped with
M-H Universal
Couplings

Jones & Laughlin
Co. 32"
Dominion F. & S.
Co. 27"
Steel & Tube Co. 30"
Billet Mill 28"
Lackawanna S. Co. 33"
Kiushu 24"



35" Blooming Mill, Steel & Tube Co.

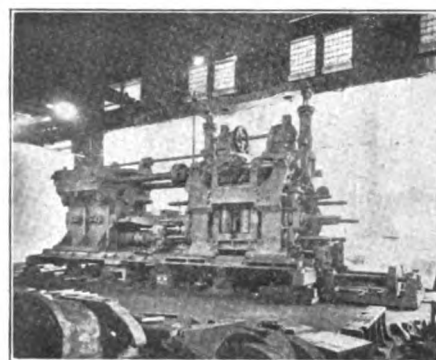
The Most Simple of all
Universal Couplings

Proved by Years of
Heavy Duty Mill
Service as

Absolute in Reliability
Minimum Repairs

Noiseless in Operation

Pays for Its Installation
in a Very Few Months



27" 2-high Universal Plate Mill,
Dominion Foundry & Steel Co.

*Let Us Give You a Price on Equipping Your
Old Mill With M-H Universal Couplings*

Mackintosh-Hemphill Co.

PITTSBURGH, PA.

"The Best in Rolling Mill Machinery"

Co-operate:—Refer to The Blast Furnace and Steel Plant

ASHLAND

ASHLAND

The gradual return of good business with all indications pointing to a greater demand for steel means more Blast Furnaces will be blown in, more Fire Brick needed for linings. What kind of Fire Brick are you going to buy?

Chemically pure fire clays do not occur in nature. Theoretically, such a mineral would be a "Hydrated Silicate of Alumina"—that is, a chemical combination of definite proportions of Oxide of Silicon (Silica) with Oxide of Aluminum (Alumina).

As refractory materials are required to retain their integrity, forms and strength as well as to resist the action of heat, high grade fire clay by reason of its peculiar properties is more useful generally than pure Silica or pure Alumina refractories.

ASHLAND FIRE BRICK

is made from the well known Kentucky Fire Clay which is exceptionally pure and free from Alkalies.

This clay is known as Flint and semi-Flint Clay and contains the qualities of both the soft or plastic clays and the hard or Flint Clays.

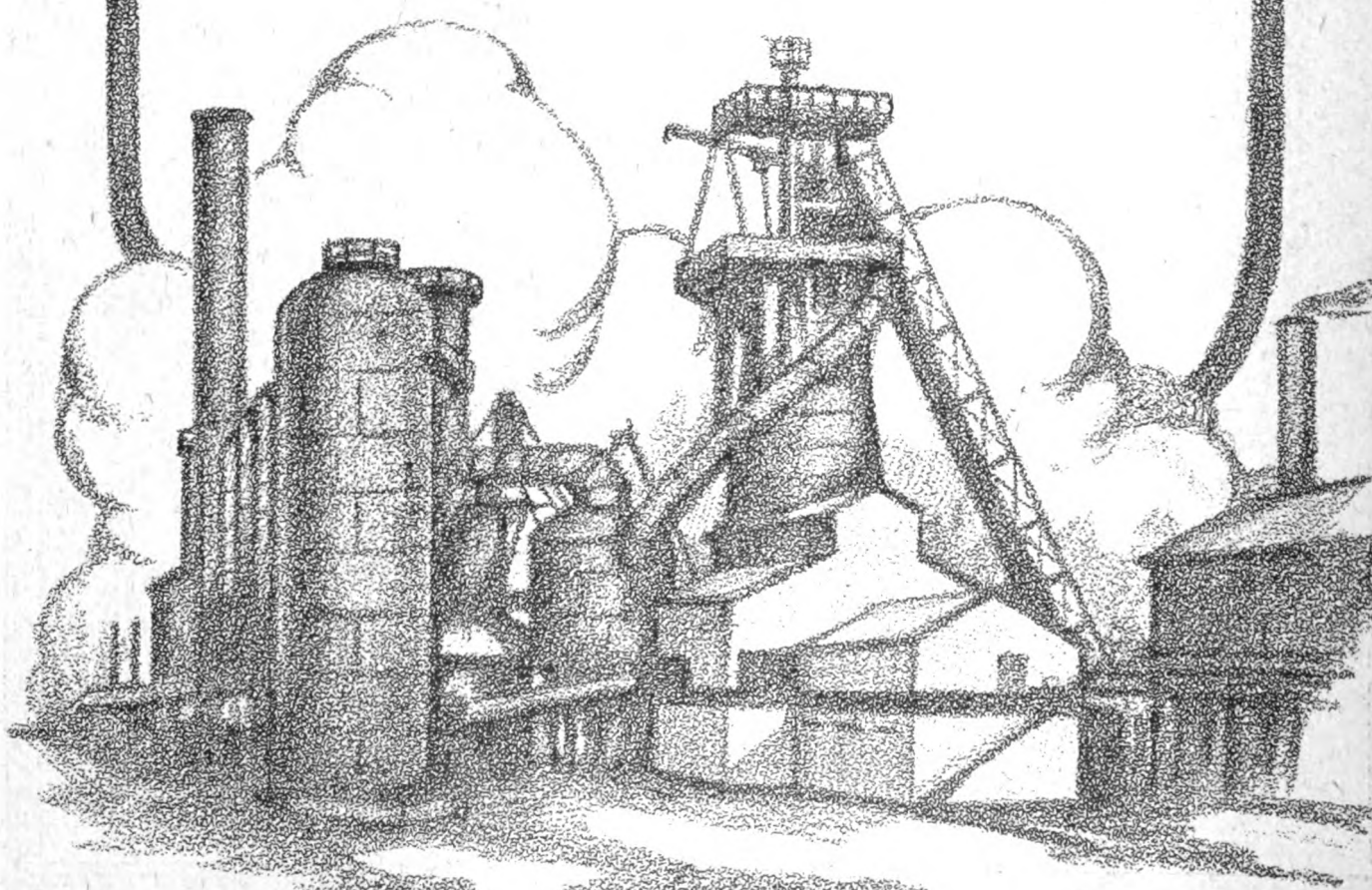
This clay, after being treated by the Special Ashland Process and pressed into various shapes and sizes required in different departments of the steel plants, becomes a Fire Brick that spells Satisfaction.

Ashland Fire Brick Co.

Ashland, Kentucky

Incorporated 1886

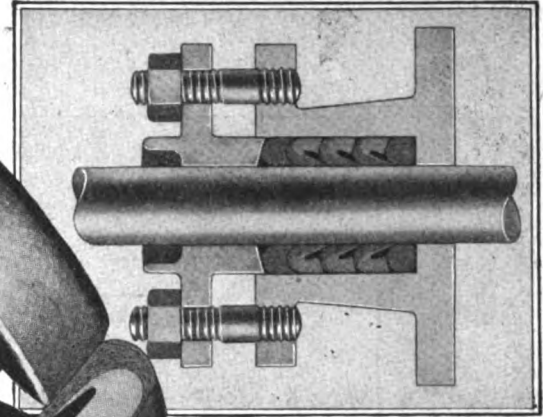
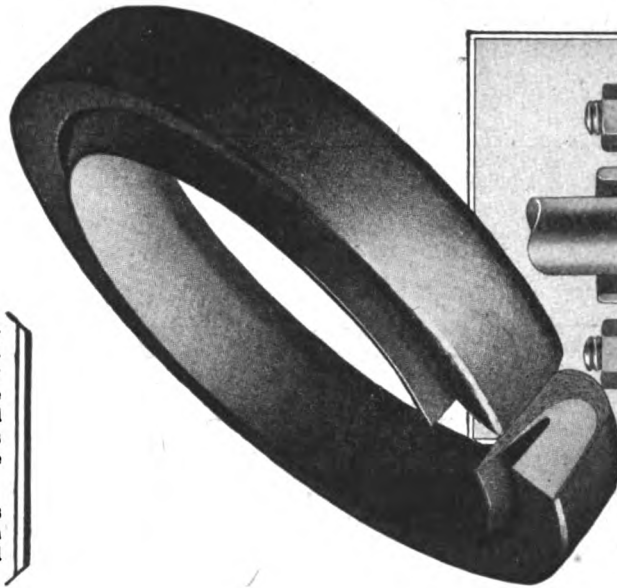
"Line with the Ashland Line"



Co-operate:—Refer to The Blast Furnace and Steel Plant

The Sea Ring is a modern, scientifically constructed rod and plunger packing. It is packed by cylinder pressure—not by the gland. Cylinder pressure trapped in the U-shaped section expands the packing with just enough force to prevent leakage.

This automatic action cuts down friction. Reduced friction means reduced wear, power saved and economy.



How long will Sea Rings last? *In this case, 5 years*



A Vermont Granite Company decided to test out Sea Ring rod and plunger packing before making a complete installation. A trial set was placed both on the steam and air ends of a Sullivan Compressor—a double test.

5 years later, both sets were still giving good service, although they had never been touched.

times over. They will outlast them by so great a margin that when you compare packing costs, Sea Rings will out-economize their predecessors.

This is aside from rod wear and power saving. The saving in power alone will often more than pay the cost of Sea Rings.

Try Sea Rings in just one of your stuffing boxes, and find out yourself how long a properly designed packing will last.

The Johns-Manville Steam Trap

The sheer simplicity of this 3-part Johns-Manville Steam Trap is a guarantee of its permanent reliability. Good design has been substituted for complicated working parts, and the result is a dependable, fool-proof super-trap.



WE NEVER know what to say when people ask how long Sea Ring rod packing will last. If we say two years, we are usually unfair to the packing. Conditions vary—no two are comparable.

But there is one thing you can be sure of—Sea Rings will outlast any ordinary packings you may be using, many

JOHNS-MANVILLE Inc., Madison Avenue at 41st Street, New York City

Branches in 57 Large Cities

For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto



JOHNS-MANVILLE Power Plant Materials

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New Koppers Oven

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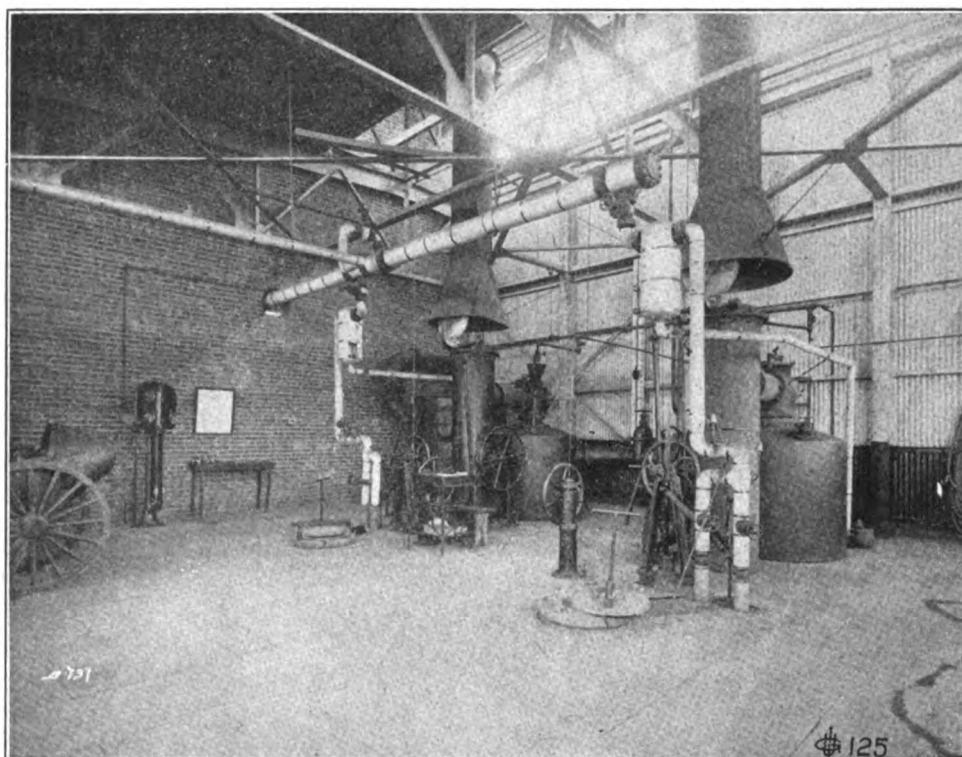
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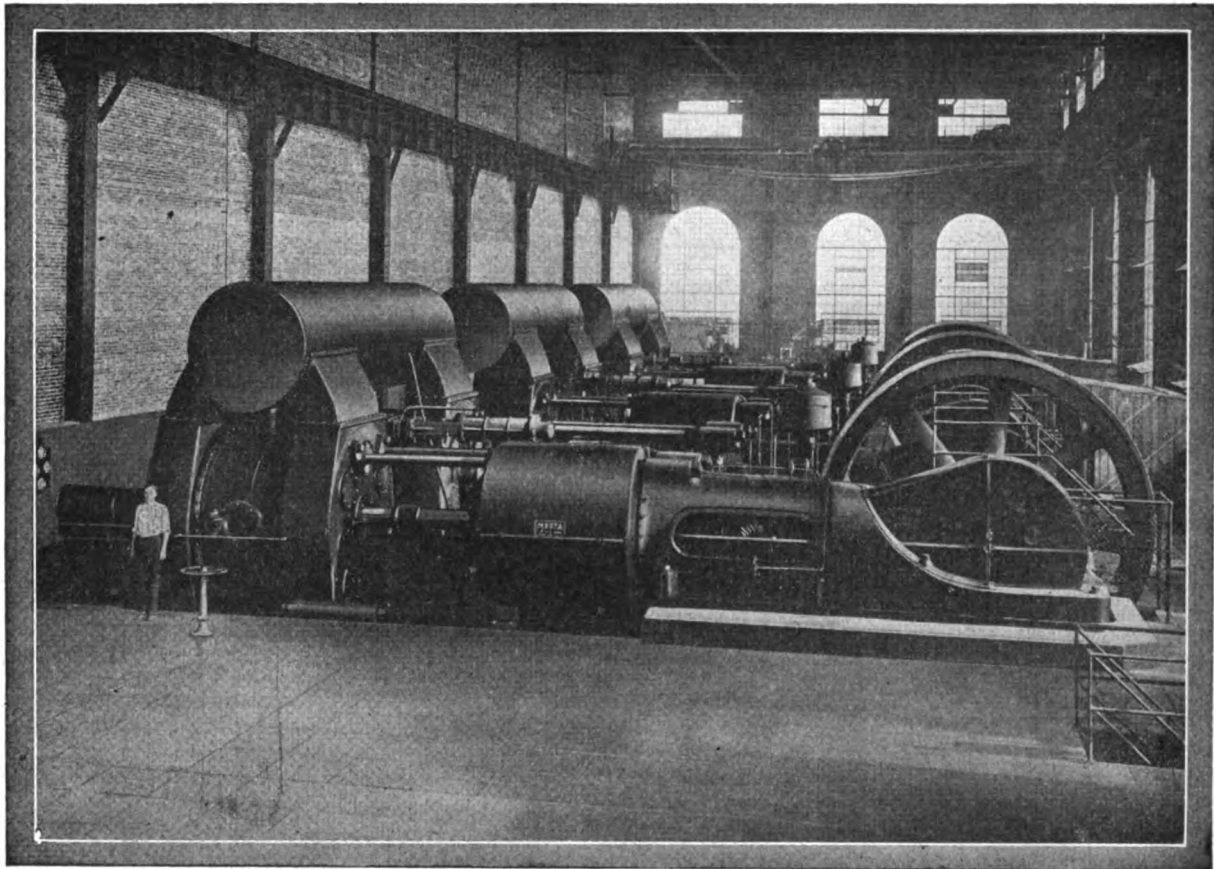
335 Peoples Gas Bldg., Chicago

928 Union Arcade, Pittsburgh



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M E S T A



View showing Installation of Three 34" and 66" and 84" and 84"x48" Mesta Steam Blowing Engines.

STEAM BLOWING ENGINES OVER 90 PER CENT

Of all engines built in this country within the
last eight years for blowing blast furnaces were

MESTA BLOWING ENGINES

Equipped with

MESTA AUTOMATIC PLATE VALVES

MESTA MACHINE COMPANY

GENERAL OFFICE AND WORKS, WEST HOMESTEAD, PENNSYLVANIA
(MAIL ADDRESS: BOX 1124, PITTSBURGH)

Manufacturers of

Gas and Steam Power Engines, Blowing Engines, Rolling Mill Machinery, Forging Presses, Gear and Rope Drives, Barometric Condensers and Vacuum Pumps, Air Compressors, Pickling Machines, Cut and Machine Molded Gears and Rolling Mill Pinions, Iron and Steel Castings, Rolls, Forgings, Forging Ingots, Forging Billets, etc.

BRANCH OFFICES

New York
Singer Bldg.

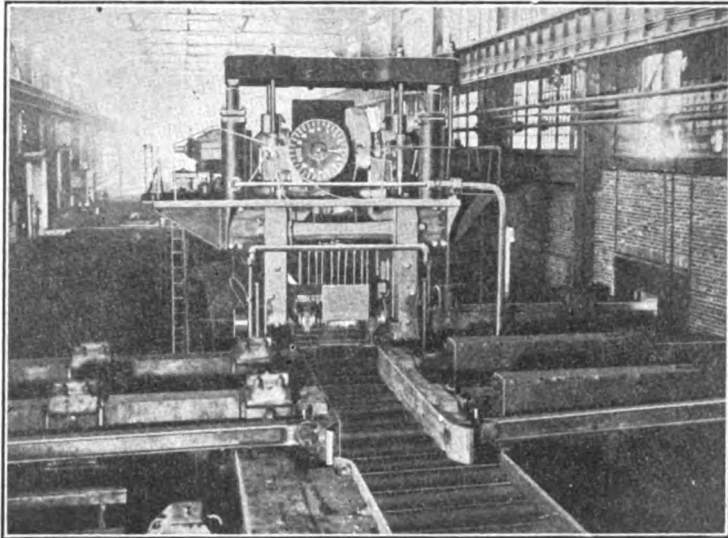
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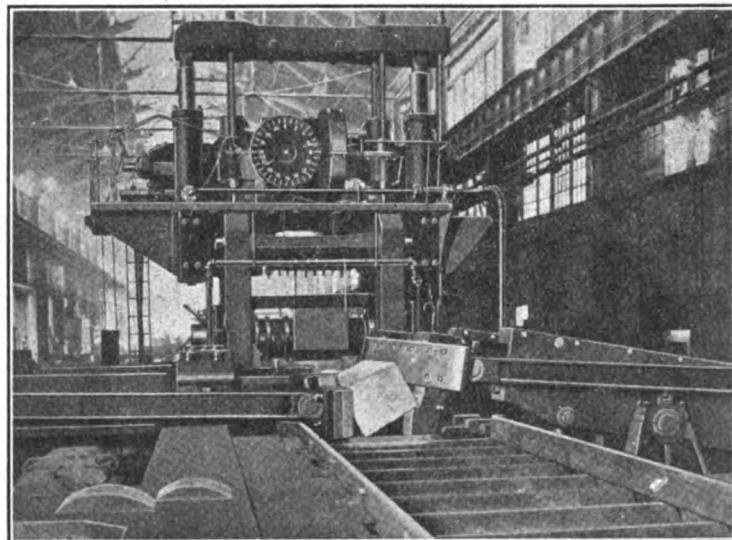
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ASHLAND
FIRE
BRICK

The keystone of economical operation at your blast furnace is a good, durable, highly refractory Fire Brick.

ASHLAND FIRE BRICK

Made from the well known highly refractory Kentucky Fire Clay, which is exceptionally pure and free from alkalis. This clay is composed of the Flint (hard clay) and the semi-flint which contains the qualities of both the soft or plastic clays and the hard clays.

There has been more or less contention in regard to the use of hand-made or steam-pressed fire brick. The Ashland Fire Brick Company is in a position to supply either hand-made or steam pressed linings. Each has certain good qualities. The machine pressed brick can be made more dense and therefore are more resistant to abrasion and slag action. They are also more uniform than the hand-made brick which are always subject to the personal equation. The machine also imparts a sharper corner and smoother surface, either of which tends to tighten joints thus decreasing the chance for scaffold formation.

On the other hand machine-made bricks are apt to spall more readily than hand-made bricks, but this factor is not considered important in the blast furnace.

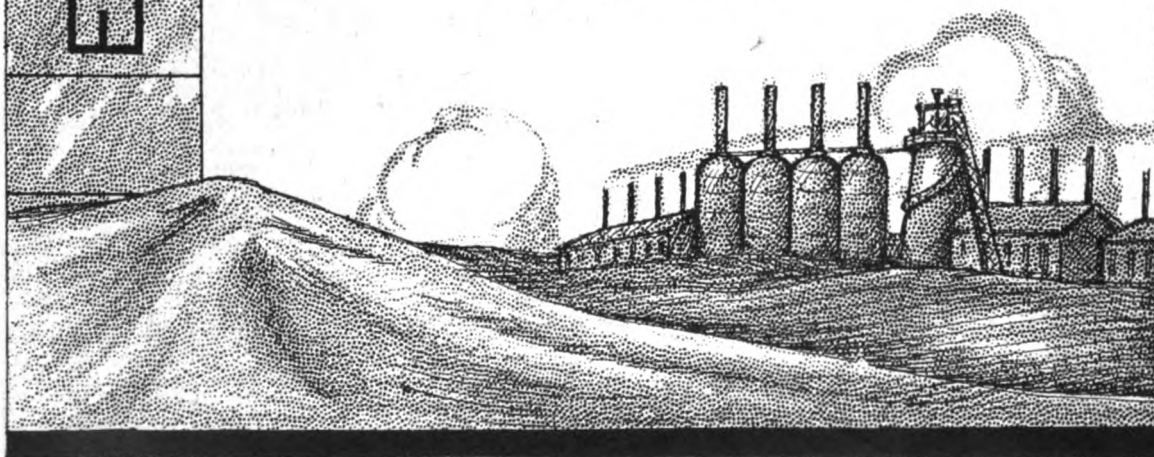
Whichever brick are used, they should be laid up with only the best fire clay—preferably shipped by the company supplying the fire brick.

Write for booklet No. 108 dealing with the subject.

Ashland Fire Brick Company
Ashland, Ky.

INCORPORATED 1886

"Line with the Ashland Line"



Co-operate:—Refer to The Blast Furnace and Steel Plant

Announcing REDUCTION IN PRICES

on

Oxweld and Eveready Apparatus for Welding and Cutting Metals

EFFECTIVE JUNE FIRST, prices on Oxweld and Eveready Apparatus were substantially reduced.

Every manufacturer or shop owner, user or prospective user of the oxy-acetylene process for welding and cutting metals will find it to his advantage to inquire for information concerning this price reduction.

We especially stress the fact that this reduction has been accomplished without change in the superior design of Oxweld and Eveready Apparatus or the completeness of Oxweld Service.

Full information and any other service may be secured from our resident Sales and Service Engineers in the following cities:

NEW YORK
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PHILADELPHIA
BALTIMORE
NEWARK
BUFFALO
BINGHAMPTON

CHICAGO
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CINCINNATI
INDIANAPOLIS
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DETROIT
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NEW ORLEANS
HOUSTON
SAN FRANCISCO
TULSA

OMAHA
PORTLAND
SEATTLE
SALT LAKE CITY
LOS ANGELES
DENVER

Consult Your Telephone Book

OXWELD ACETYLENE COMPANY

Carbide and Carbon Building
30 East 42nd Street, New York

WORLD'S LARGEST MAKERS OF OXY-ACETYLENE
WELDING AND CUTTING APPARATUS

Co-operate:—Refer to The Blast Furnace and Steel Plant

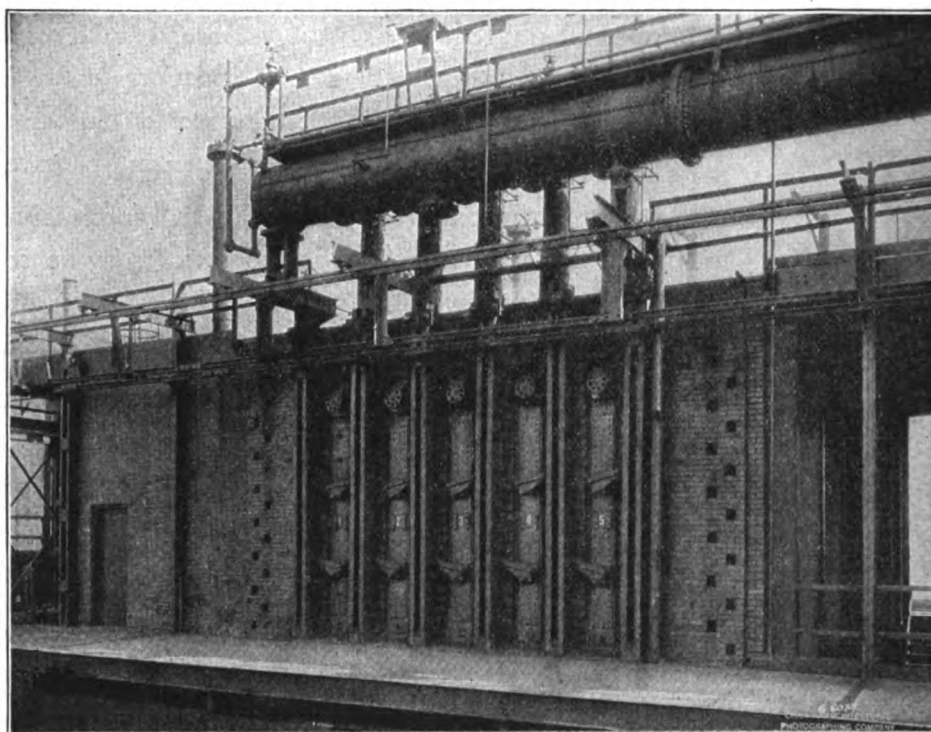
The New Koppers Oven

The Iron and Steel Industry will welcome the development and successful operation of THE NEW KOPPERS OVEN, backed as it is by the accumulated knowledge and experience gained in designing and building over 6700 by-product coke ovens.

A battery of these NEW KOPPERS OVENS has been in operation at the plant of the Chicago By-Product Co. since January. The average coking time has been under 11 hours and at times has been less than 10 hours. On this basis, each of these ovens has a coking capacity of from 25 to 26 tons of coal per day.

Remarkable as the above performance is, the quality of the coke produced is even more so. In stating that the use of coke made in these New Koppers Ovens will make possible greatly improved blast furnace practice and materially lower the consumption of coke per ton of iron produced, we are only repeating the unanimous opinion of the experts who have inspected these ovens and examined the coke produced.

We unhesitatingly recommend the NEW KOPPERS OVEN to our customers in preference to our old design.



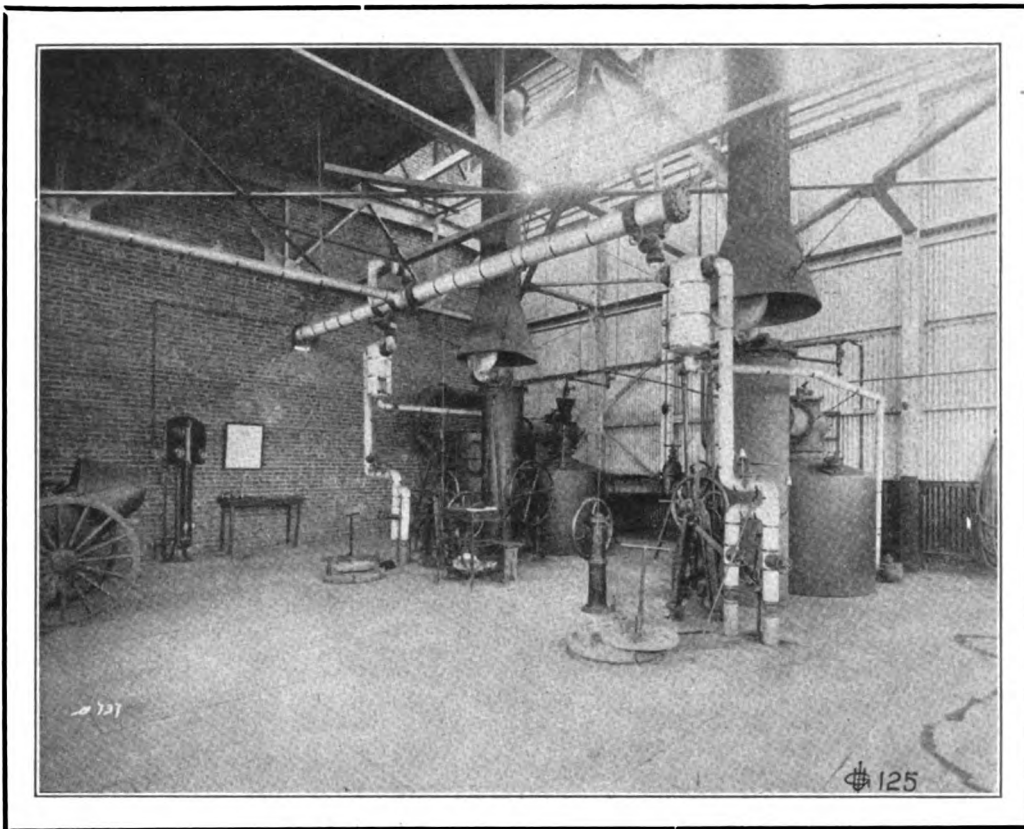
Battery of Five New Koppers Ovens

THE KOPPERS COMPANY

PITTSBURGH

Co-operate:—Refer to The Blast Furnace and Steel Plant

THIS
BLUE GAS APPARATUS
IS LOCATED AT THE
BLAW-KNOX COMPANY'S PLANT
ITS PRODUCT IS BEING SUCCESSFULLY USED FOR MANY
INDUSTRIAL PURPOSES



U. G. I. BLUE GAS PLANTS

CAN BE BUILT IN LARGE OR SMALL CAPACITIES
AND PRODUCE A CLEAN, COOL GAS OF HIGH FLAME
TEMPERATURE

WE STAND READY TO HELP YOU WITH
FACTS AND FIGURES

THE U. G. I. CONTRACTING CO.

Broad and Arch Sts., Philadelphia

335 Peoples Gas Bldg., Chicago

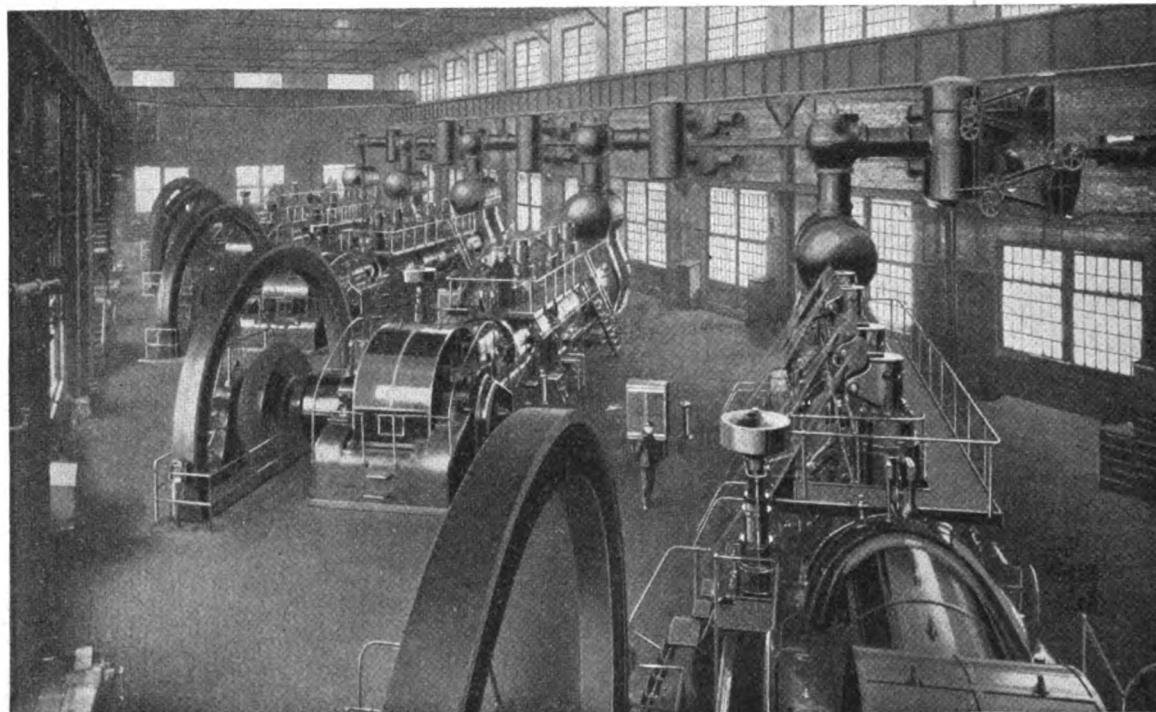
928 Union Arcade, Pittsburgh



Co-operate:—Refer to The Blast Furnace and Steel Plant

MESTA

GAS BLOWING & POWER ENGINES



Installation of Five Mesta Gas Blowing Engines

UTILIZE YOUR BLAST FURNACE GAS TO THE BEST ADVANTAGE BY INSTALLING **MESTA GAS BLOWING & POWER ENGINES**

CONSIDER THESE FACTS

The amount of gas liberated from the average Blast Furnace under normal operating conditions is about 150,000 cu. ft. per ton of pig iron production in 24 hours. Of this amount the following distribution is made:

Consumed by hot blast stoves.....	30 to 32%
" " Gas Blowing Engines.....	10 to 12%
" " auxiliaries and loss by leakage.....	8 to 10%
Surplus Gas—Approximately.....	50%

This surplus gas, when utilized in Gas Engines for the generation of power to be used outside of the Blast Furnace Plant, will deliver, continuously, at least 25 Horse Power per ton of Iron produced, which is more than sufficient to operate the usual Steel Plant.

For reliability and ease of operation, Mesta Gas Engines are equivalent to any steam driven unit.

MANUFACTURED BY

Mesta Machine Company

PITTSBURGH, PA.

MANUFACTURERS OF

Gas and Steam Engines, Blowing Engines, Reversing Engines, Rolling Mill Machinery, Forging Presses, Gear Drives, Air Compressors, Condensers, Rolls, Pinions, Cut and Machine Molded Gears, Iron and Steel Castings, Forgings, Forging Ingots, etc.

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Via S. Marto 10
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Mitsui & Company, Ltd.
65 Broadway, New York
Tokio, Japan

Co-operate:—Refer to The Blast Furnace and Steel Plant

Mackintosh-Hemphill Co.

Offers You a Complete Service—IN ROLLING MILL AND STEEL WORKS
EQUIPMENT—thru its following departments:

Fort Pitt Foundry Pittsburgh, Pa.

A. Garrison Foundry Pittsburgh, Pa.

Woodard Machine Co. Wooster, Ohio

Pittsburgh Iron & Steel Foundries Midland, Pa.

The Best in Rolling Mill Machinery

SHEARS, SAWS, PRESSES, ROLL LATHES, HYDRAULIC MACHINERY

“MANGANITE” **ROLLS** “ADAMITE”

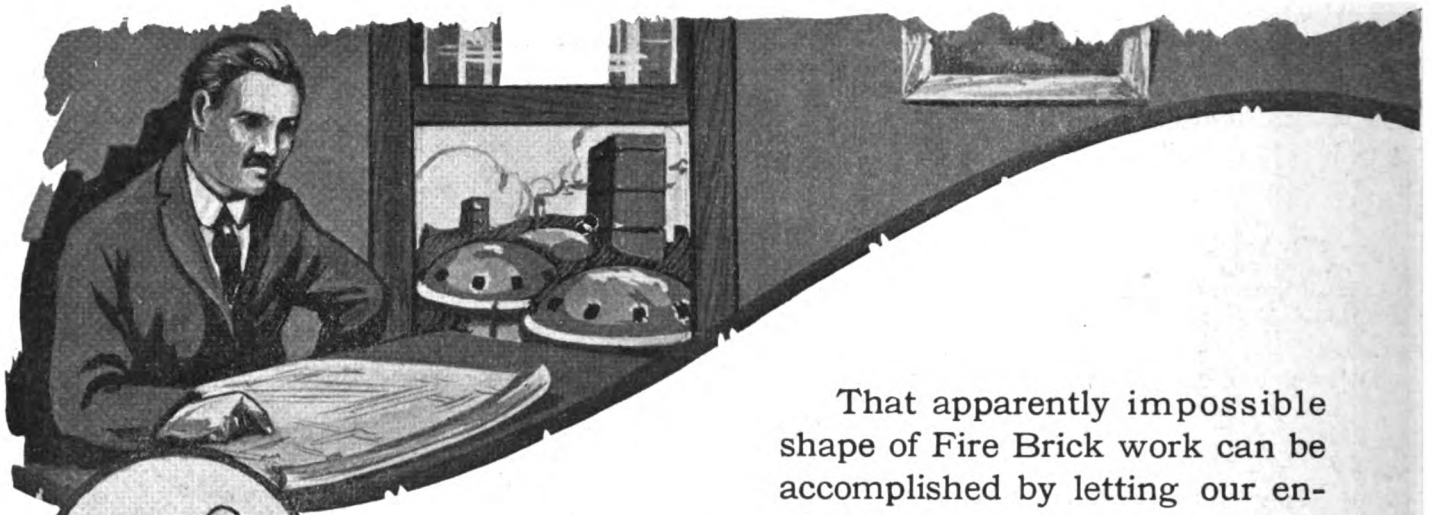
STEEL, IRON AND “ADAMITE” CASTINGS

CHILLED, SAND AND STEEL ROLLS

CAST AND CUT TEETH GEARS AND PINIONS

Mackintosh-Hemphill Co.
PITTSBURGH, PA.

Co-operate:—Refer to The Blast Furnace and Steel Plant



That apparently impossible shape of Fire Brick work can be accomplished by letting our engineers solve your problem with

ASHLAND FIRE BRICK

Down here at Ashland, Ky., we have an organization of men that have been trained for years in the manufacture of Fire Brick. Like all men who do things, they have a hobby—their hobby is in the making of special shapes and sizes and they will be delighted to help you with your problems. Send your plans to us and we will materialize them.

Ashland Fire Brick is made from the highly refractory Kentucky Fire Clay, the same being exceptionally pure and free from alkalies. This Clay is composed of the Flint (hard clay) and the semi-Flint which contains the qualities of both the soft or plastic clays and the hard clays.

By taking the proper proportions of these clays, pressing them into form and when treated by the special Ashland Process they become a uniform, durable fire brick that is serving the steel industry in its various operations and giving satisfactory results.

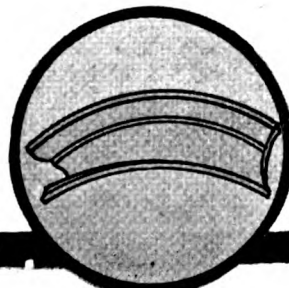
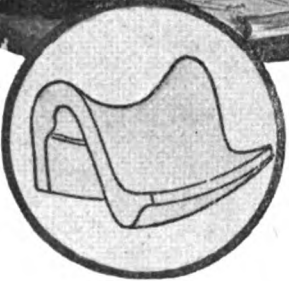
“LINE WITH THE ASHLAND LINE”

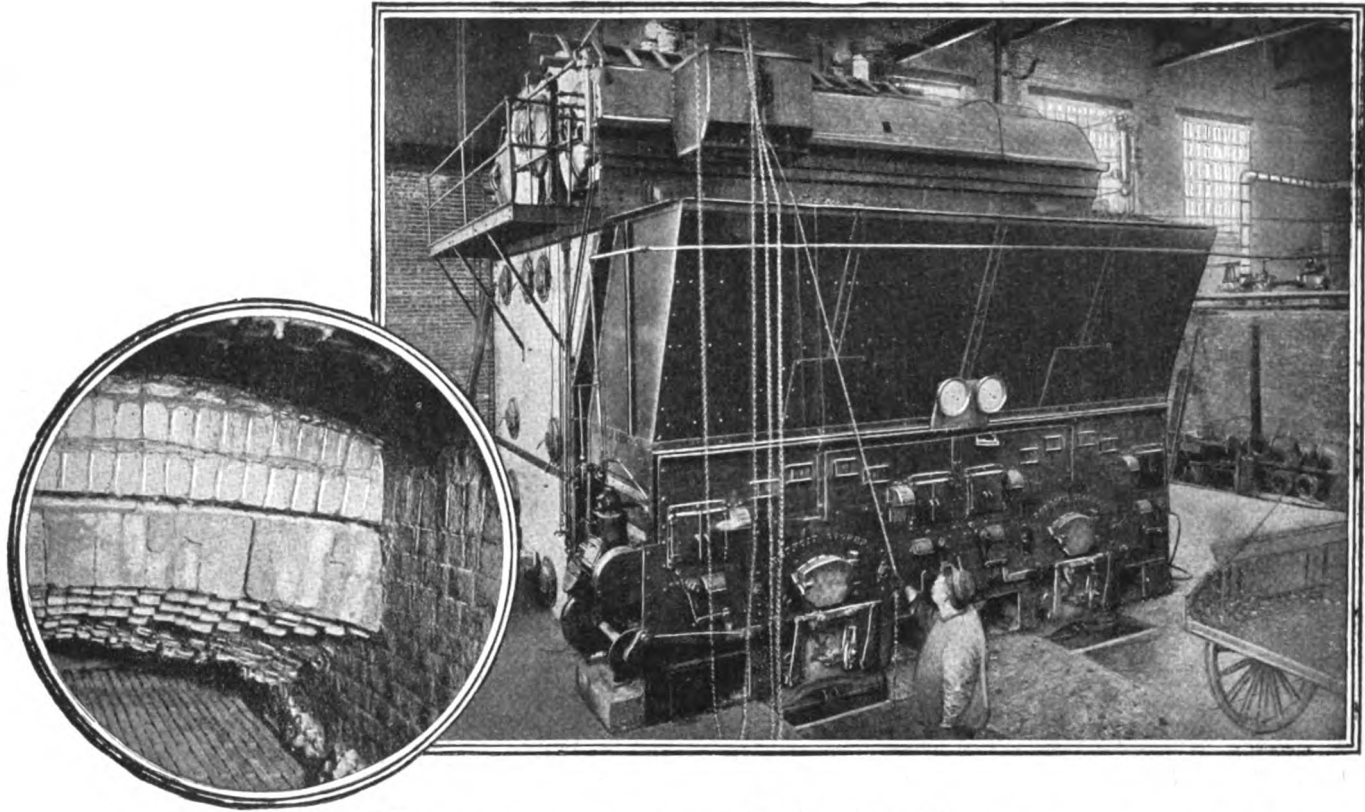
Ashland Fire Brick Company

Incorporated 1886

Ashland, Kentucky

Co-operate:—Refer to The Blast Furnace and Steel Plant





Keeping up with high temperatures —a problem in fire-box walls

COMBUSTION rates are going up—increased boiler efficiency demands it. Necessarily fire-box temperatures are increasing.

Fire clay and ordinary refractories are weaker than ever against the intensive firing of today.

Johns-Manville foresaw this problem and developed materials to meet it. We have already provided heat treatment for hundreds of plants where fire clay gave way.

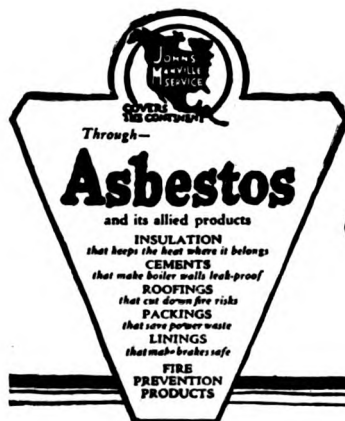
“Heat treatment” means the use of high grade refractory cements for setting up and protecting the surface of fire-bricks. Johns-Manville Refractory Cements are made for con-

ditions from normal to extreme—Johns-Manville number 35 will resist temperatures up to 3500° F.

In addition to their heat resistance these cements have the physical strength so necessary in a fire-box wall. They adhere closely to the brick, protecting it from cracking and spalling, and resist the adhesion of clinker.

Lay up and coat your fire-brick with Johns-Manville High Temperature Cements and prevent unnecessary shut-downs. It will pay you in lower power costs.

JOHNS-MANVILLE Incorporated
Madison Avenue at 41st Street, New York City
Branches in 56 Large Cities
For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto



JOHNS-MANVILLE

High Temperature Cement

Co-operate:—Refer to The Blast Furnace and Steel Plant

KOPPERS COMBINATION OVENS



NO STEEL COMPANY can say with certainty what its requirements of coke or gas will be during a span of fifteen years, which is generally accepted as the life of the brickwork in a by-product coke oven plant. Particularly the amount of clean coke oven gas that may be required.

New uses to which such gas may be put are constantly arising. Statistics show that the percentages of increase in the amount of coke oven gas required for steel plant operation far exceeds the increase in the amount of coke required.

In building a by-product coke plant this must be taken into consideration. Koppers combination coke and gas ovens, which can be heated with oven gas, producer gas, blast furnace gas or blue water gas are your insurance against such a contingency.

THE KOPPERS COMPANY
PITTSBURGH

Co-operate:—Refer to The Blast Furnace and Steel Plant

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BLAW-KNOX COMPANY'S PLANT
ITS PRODUCT IS BEING SUCCESSFULLY USED FOR MANY
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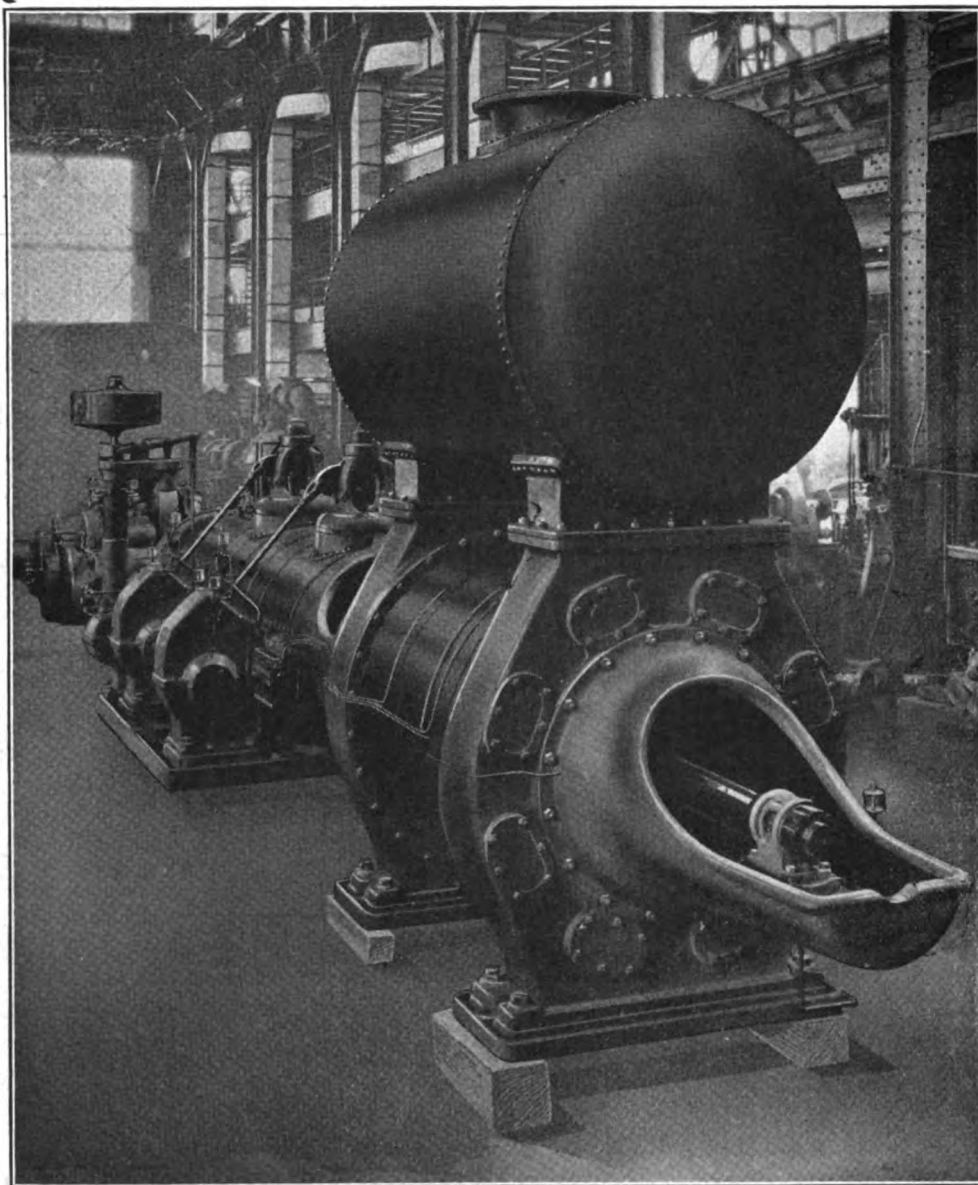


Co-operate:—Refer to The Blast Furnace and Steel Plant

MESTA

UNA-FLOW TYPE BLOWING ENGINES

(BUILT UNDER STUMPF PATENTS)



Mesta Una-Flow Type Blowing Engine on Erecting Floor.

PRESENTING THE LATEST FEATURES IN BLOWING ENGINE CONSTRUCTION

Simpler in construction and yet more economical in steam consumption than any other type of steam blowing engine.

Especially adapted for high steam pressures and superheat.

Air cylinders equipped with Mesta automatic plate valves (Iversen Patent).

Built in single cylinder or twin cylinder units.

Write for Bulletin "U"

MESTA MACHINE COMPANY
PITTSBURGH **PENNSYLVANIA**

Co-operate:—Refer to The Blast Furnace and Steel Plant

Mackintosh-Hemphill Co.

Offers You a Complete Service—IN ROLLING MILL AND STEEL WORKS
EQUIPMENT—thru its following departments:

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A. Garrison Foundry.....Pittsburgh, Pa.

Woodard Machine Co.....Wooster, Ohio

Pittsburgh Iron & Steel Foundries.....Midland, Pa.

The Best in Rolling Mill Machinery

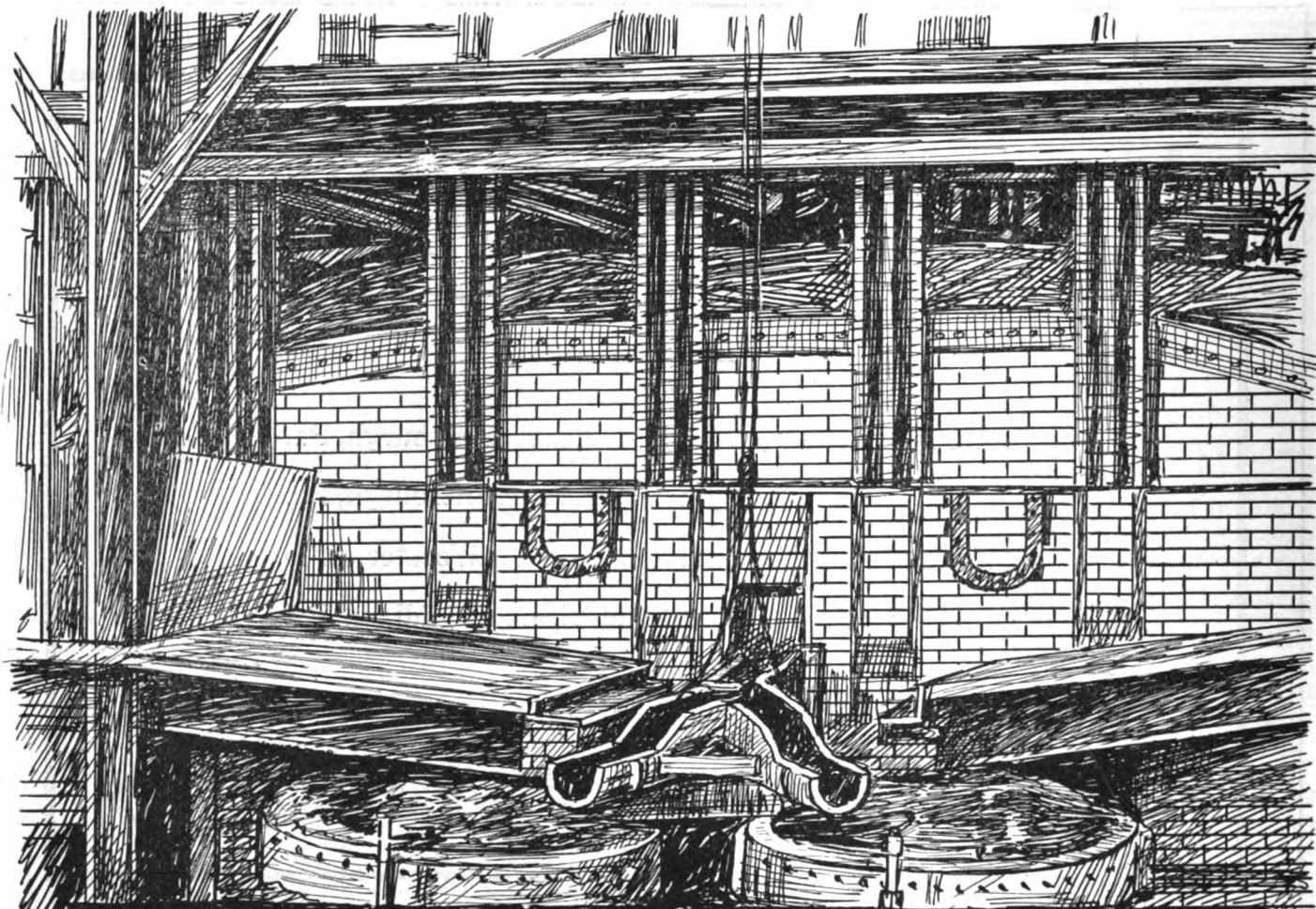
SHEARS, SAWS, PRESSES, ROLL LATHES, HYDRAULIC MACHINERY

“MANGANITE” **ROLLS** “ADAMITE”

STEEL, IRON AND “ADAMITE” CASTINGS
CHILLED, SAND AND STEEL ROLLS
CAST AND CUT TEETH GEARS AND PINIONS

Mackintosh-Hemphill Co.
PITTSBURGH, PA.

Co-operate:—Refer to The Blast Furnace and Steel Plant



How About The Open Hearth?

In what phase of the steel plant are you likely to find greater wear and tear on the Fire Brick than in the checker of the open hearth?

As the bricks are repeatedly heated and cooled the more desirable checker brick should not deteriorate appreciably in mechanical strength, but should remain sufficiently strong to resist abrasion. Neither should these bricks spall away.

ASHLAND CHECKER BRICK

While not indestructible, does possess remarkably durable qualities. Ashland Steam Pressed Brick are ideally fitted for conveying heavy loads at high temperatures and are particularly adapted for checker service.

They are more than the necessary refractoriness, they do not become vitrified in service; they contain the maximum amount of clay; they are free from lamination and they are made from clays particularly adapted to resist slagging action.

In all, we have a wonderfully good checker brick.

Write for Booklet No. 104.

"LINE WITH THE ASHLAND LINE"

ASHLAND FIRE BRICK COMPANY
ASHLAND, KENTUCKY

Incorporated 1886.

Co-operate:—Refer to The Blast Furnace and Steel Plant

Read on this page, from issue to issue, a description of the features which have made Prest-O-Lite a national institution



PREST-O-LITE

Why Prest-O-Lite Makes Its Own Cylinders

Prest-O-Lite delivers to the user a product that is Prest-O-Lite through and through.

The cylinder is made in a Prest-O-Lite factory specially equipped for cylinder manufacture. Prest-O-Lite engineering skill and inspection control every step in production.

Making cylinders to its own design, guarding every step, Prest-O-Lite knows that each cylinder measures up to its high standard resulting from years of experience in the manufacture and distribution of Dissolved Acetylene.

An inquiry at our nearest sales office will bring you information concerning our latest sales and service plans.

Each Prest-O-Lite user looks to his nearest District Sales Office not merely for arrangements to adequately cover acetylene needs, but for helpful co-operation and advice on any matter involved in the use of acetylene.

THE PREST-O-LITE COMPANY, Inc.

General Offices: Carbide and Carbon Building, 30 East 42nd Street, New York
Balfour Building, San Francisco; In Canada: Prest-O-Lite Co. of Canada, Toronto

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Prest-O-Lite

DISSOLVED ACETYLENE

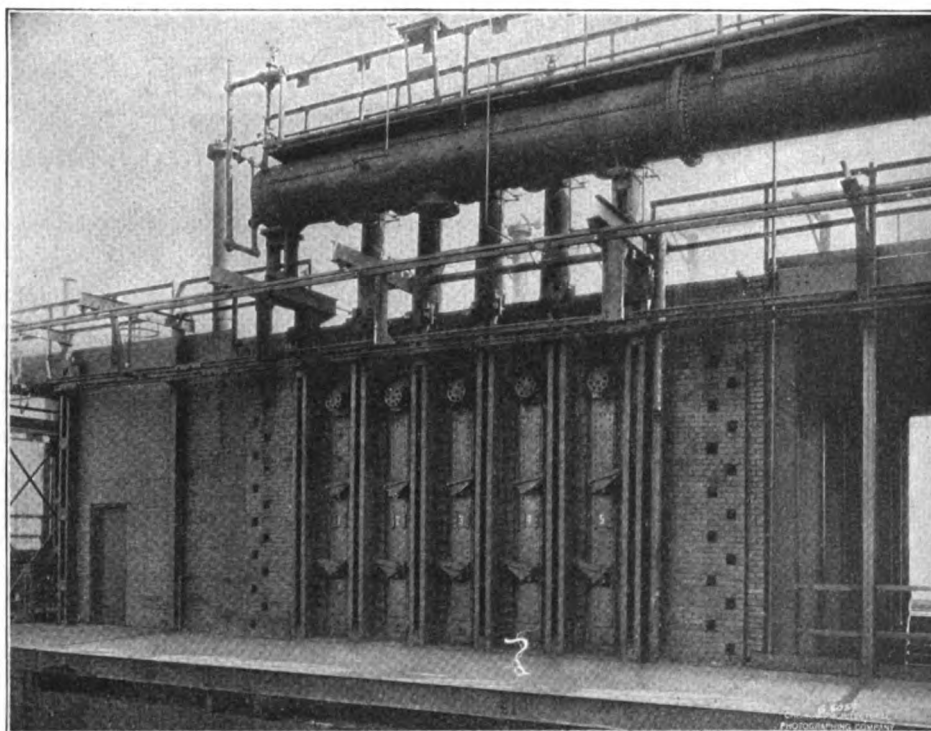
Co-operate:—Refer to The Blast Furnace and Steel Plant

KOPPERS BY-PRODUCT COKE OVENS

For fifteen years The Koppers Company has had the enviable reputation of designing and building the best in by-product coke ovens.

The performance of the more than 7,000 Koppers Ovens in operation in the United States and Canada is the best proof that it is entitled to this reputation.

In recommending THE KOPPERS COMPANY'S NEW OVEN, it is with the firm conviction, backed by actual operating results, that in this oven we have reached a degree of perfection which far excels all previous accomplishment and gives a new conception of by-product coke oven efficiency.

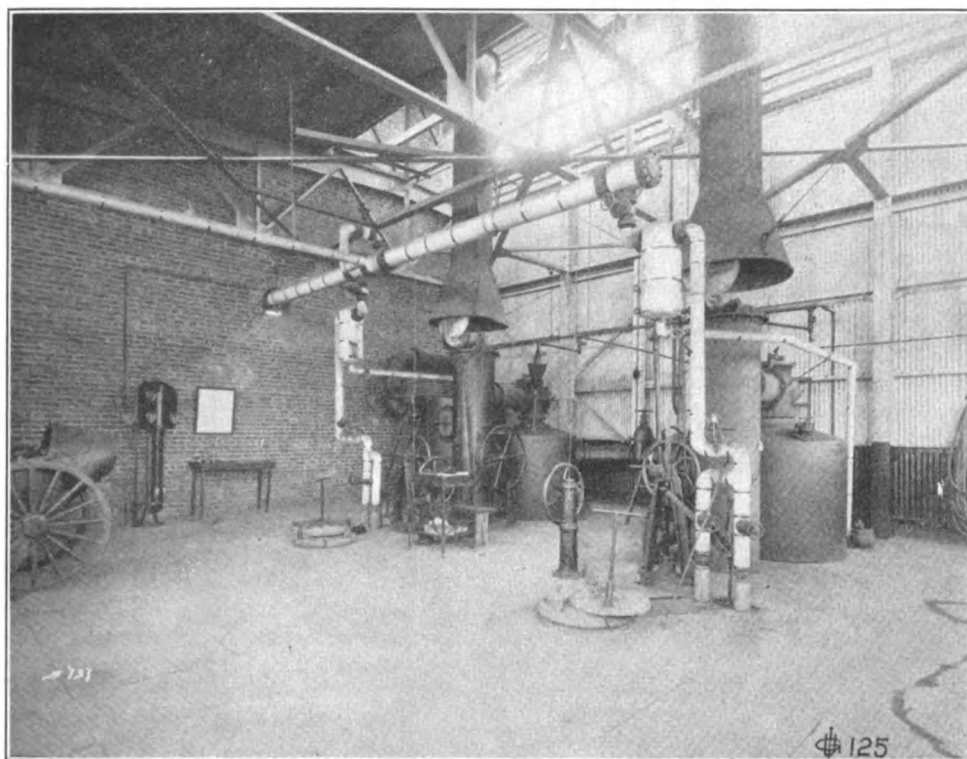


Battery of five NEW KOPPERS OVENS at Chicago
By-Product Coke Co., Chicago, Ill.

THE KOPPERS COMPANY PITTSBURGH

Co-operate:--Refer to The Blast Furnace and Steel Plant

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IS LOCATED AT THE
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ITS PRODUCT IS BEING SUCCESSFULLY USED FOR MANY
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AND PRODUCE A CLEAN, COOL GAS OF HIGH FLAME
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WE STAND READY TO HELP YOU WITH
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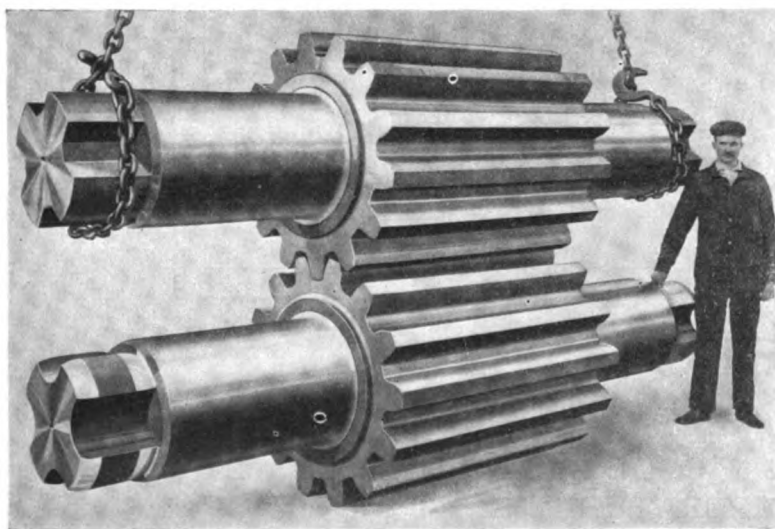
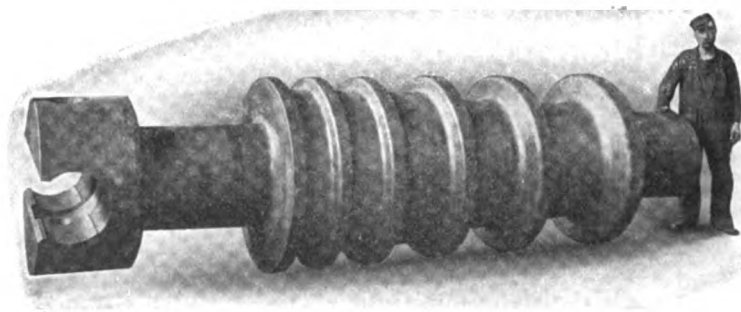
Co-operate:—Refer to The Blast Furnace and Steel Plant

MESTA SPECIAL

IT HAS NO EQUAL

for use in

ROLLS and PINIONS



**"MESTA SPECIAL" is an
ALLOY STEEL**

of high carbon-chrome-nickel composition. Heat treated by a scientific process that produces a combination of

HARDNESS and STRENGTH
not found in any other material used
FOR HEAVY CASTINGS

MESTA MACHINE CO.

CHICAGO
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Co-operate:—Refer to The Blast Furnace and Steel Plant

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Woodard Machine Co.....Wooster, Ohio

Pittsburgh Iron & Steel Foundry.....Midland, Pa.

The Best in Rolling Mill Machinery

ROLLS FOR ALL PURPOSES

“MANGANITE”—Chilled, Sand and Steel—“ADAMITE”

ROLLING MILLS of all Kinds and Types

STEEL AND IRON CASTINGS UP TO 75 TONS

BRASS CASTINGS

“ADAMITE” AND SPECIAL STEEL CASTINGS

Shears, Saws, Presses, Roll Lathes, Hydraulic Machinery and
Other Mill Equipment

Cast and Cut Teeth Gears and Pinions
(Spur—Bevel—Helical)

Annealing Boxes and Bottoms

Mackintosh-Hemphill Co.

PITTSBURGH, PA.

Co-operate:—Refer to The Blast Furnace and Steel Plant

At the top—A Brick that will be resistant to impacts and erosion of the incoming charges.

ASHLAND "TIP-TOP" FIRE BRICK



is a fire brick that has been developed to meet the requirements of the top of the blast furnace.

As this region is not particularly hot, the lining need not be extremely refractory. It must, however, be very resistant to the impacts and erosion of the incoming charge as it crowds its way down through the furnace.

Three different clays are used in the manufacture of the Ashland "Tip Top" Fire Brick, producing a brick that is of good refractoriness, sufficiently dense to withstand abrasion, tough enough to withstand impacts and yet sufficiently open in structure to retain its strength in spite of fluctuations in temperature.

In other words, this brick combines the refractoriness and non-spalling characteristics of the first quality fire brick — with the density and toughness of the paving brick.

We are exceptionally well equipped to take care of your problem of special shapes and sizes.

Write for Bulletin 108.

"LINE WITH THE ASHLAND LINE"

Ashland Fire Brick Co.

Incorporated 1886

ASHLAND, KENTUCKY

Co-operate:—Refer to The Blast Furnace and Steel Plant

Taking the "stuff" out of stuffing boxes

Making packing tight by screwing up the gland creates friction that destroys the packing and wastes power.

That's why Sea Rings are different — they require only sufficient gland pressure to prevent their moving in the stuffing box.

The lips of Sea Rings are adjusted by the action of the pressure they pack against, tightening as the pressure increases and loosening as the pressure drops. The pliant lips of Sea Rings bear on the rod with the minimum pressure necessary to prevent leakage.

Packing life is prolonged by removing the cause of its destruction. As a result, Sea Rings will outlast ordinary packings many times over.

That is not all. Reduced friction saves power — it actually cuts your power cost. Sea Rings are saving thousands of dollars yearly in many plants.

The Tidewater Paper Company made one of the many tests that have proven the actual saving effected by Sea Rings. The Sea Ring Booklet gives the results. Send for it.

JOHNS-MANVILLE Inc.

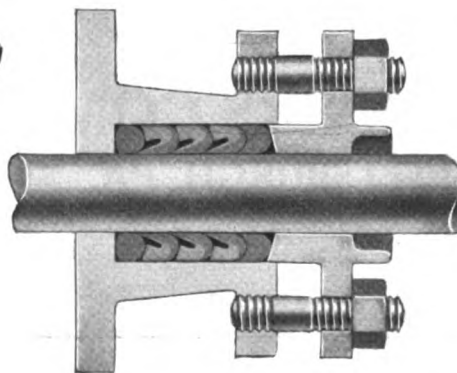
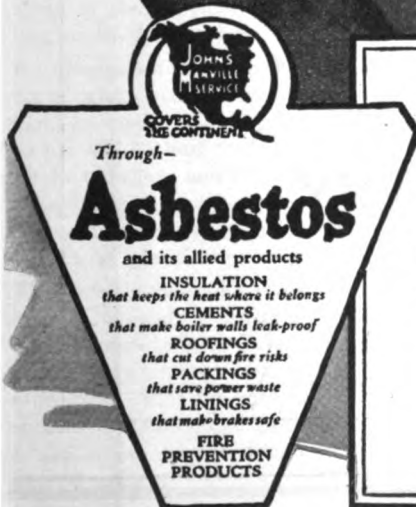
Madison Avenue at 41st Street, New York City

Branches in 56 Large Cities

For Canada: Canadian Johns-Manville Co., Ltd., Toronto

JOHNS-MANVILLE Power Plant Materials

The Sea Ring is a modern, scientifically constructed rod and plunger packing. Cylinder pressure trapped in the U-shaped section expands the packing with just enough force to prevent leakage. This automatic action cuts friction and means reduced wear, power saved and economy.



Co-operate:—Refer to The Blast Furnace and Steel Plant

The By-Product Coke Industry Moves Forward

The Carnegie Steel Company has awarded The Koppers Company a contract to build a 366 oven extension to their by-product plant and benzol motor fuel recovery plant. This is important as an indication of the general upward trend of business and the continued abandonment of the beehive oven as a source of coke supply.

Even more important is the Carnegie Steel Company's decision to build the New Type Koppers Company Combination Oven, a logical sequence of the remarkable performance of this oven since it was first placed in operation less than nine months ago.

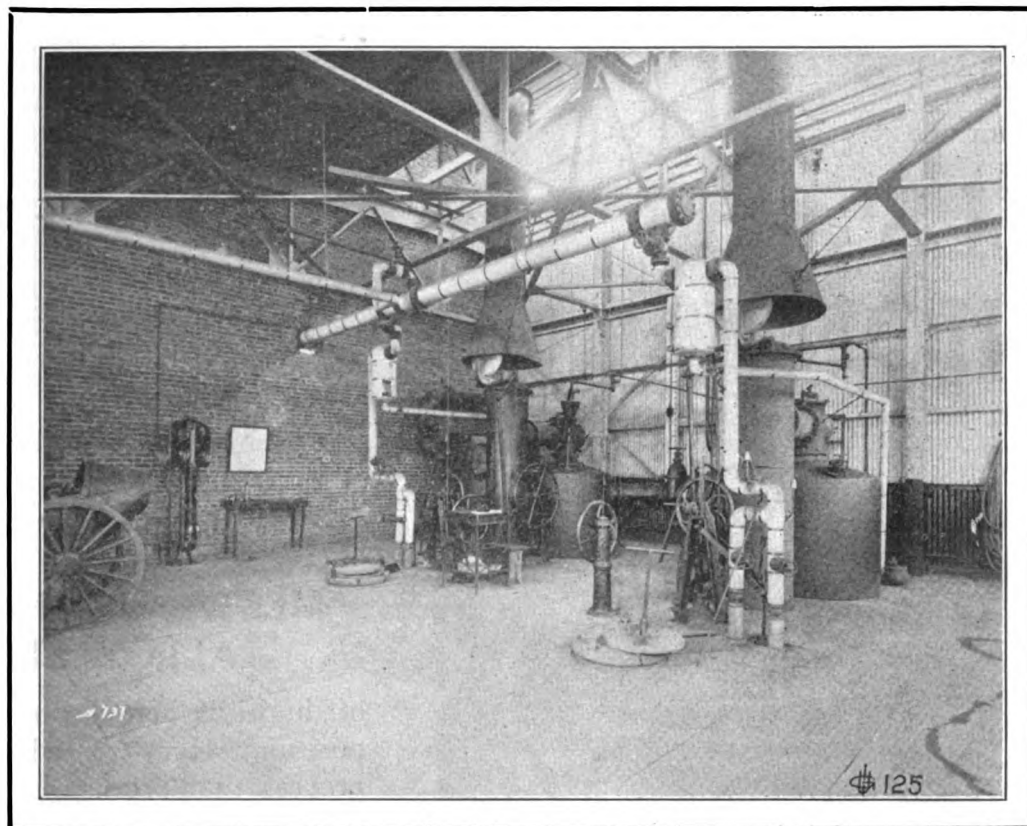
There are now 408 ovens of this new design in operation or under construction, as follows:

Carnegie Steel Company, Clairton, Pa.....	366 ovens
Weirton Steel Company, Weirton, W. Va....	37 ovens
Chicago By-Product Coke Co., Chicago, Ill...	5 ovens
Total.....	408 ovens

THE KOPPERS COMPANY
PITTSBURGH, PA.

Co-operate:—Refer to The Blast Furnace and Steel Plant

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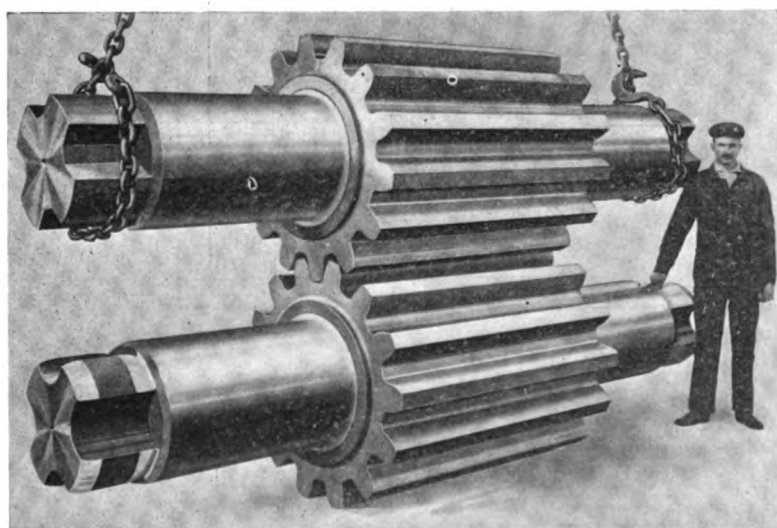
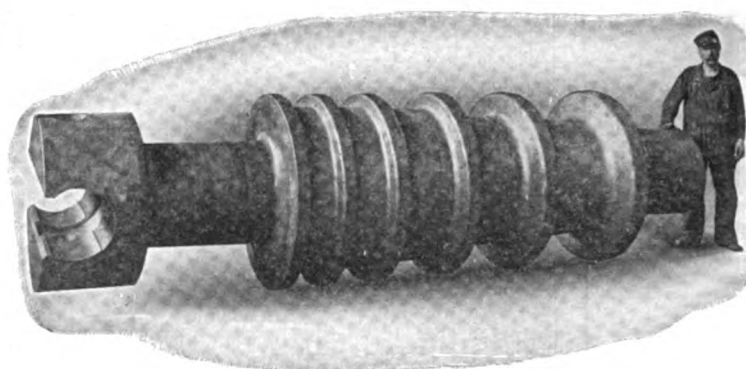
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BRASS CASTINGS

“ADAMITE” AND SPECIAL STEEL CASTINGS

Shears, Saws, Presses, Roll Lathes, Hydraulic Machinery and
Other Mill Equipment

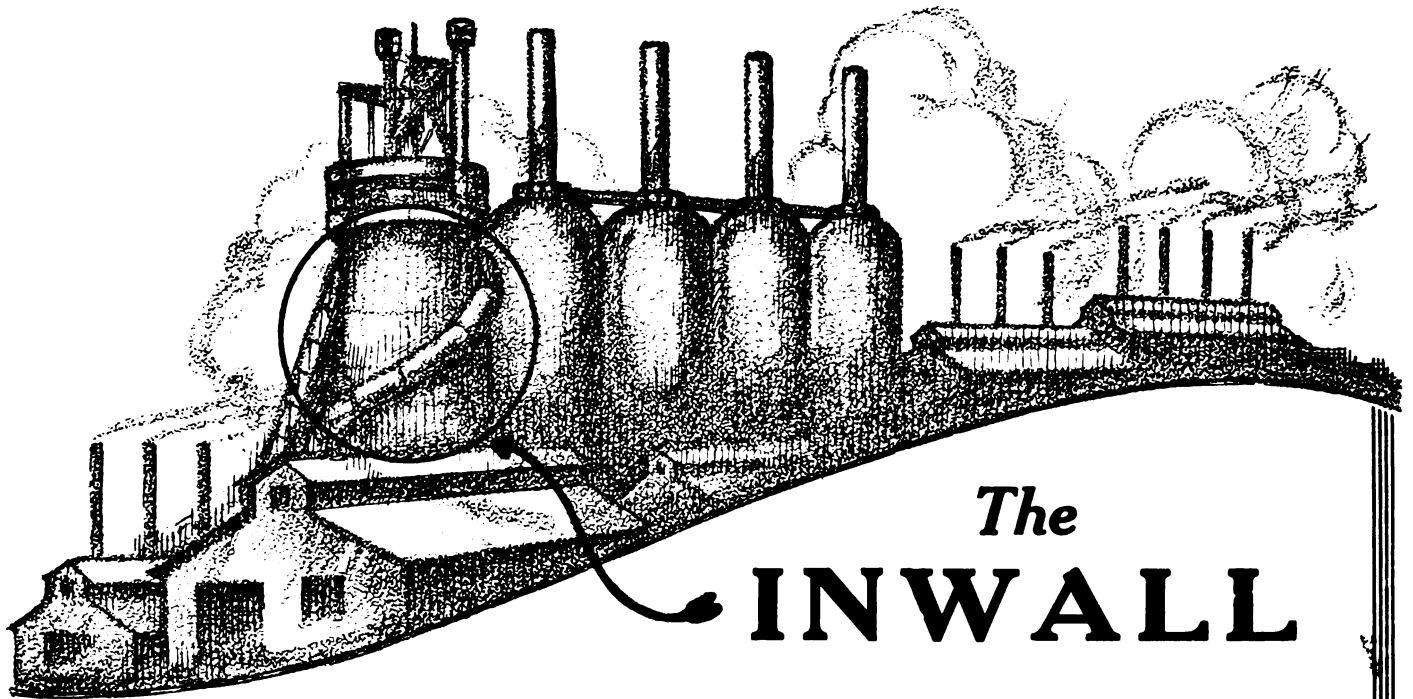
Cast and Cut Teeth Gears and Pinions
(Spur—Bevel—Helical)

Annealing Boxes and Bottoms

Mackintosh-Hemphill Co.

PITTSBURGH, PA.

Co-operate:—Refer to The Blast Furnace and Steel Plant



The **INWALL**

Where deterioration is usually greater than at any other part of the furnace lining.

ASHLAND FIRE BRICK

for inwall lining is a brick that has been especially developed to meet various influences and actions that occur within this region.

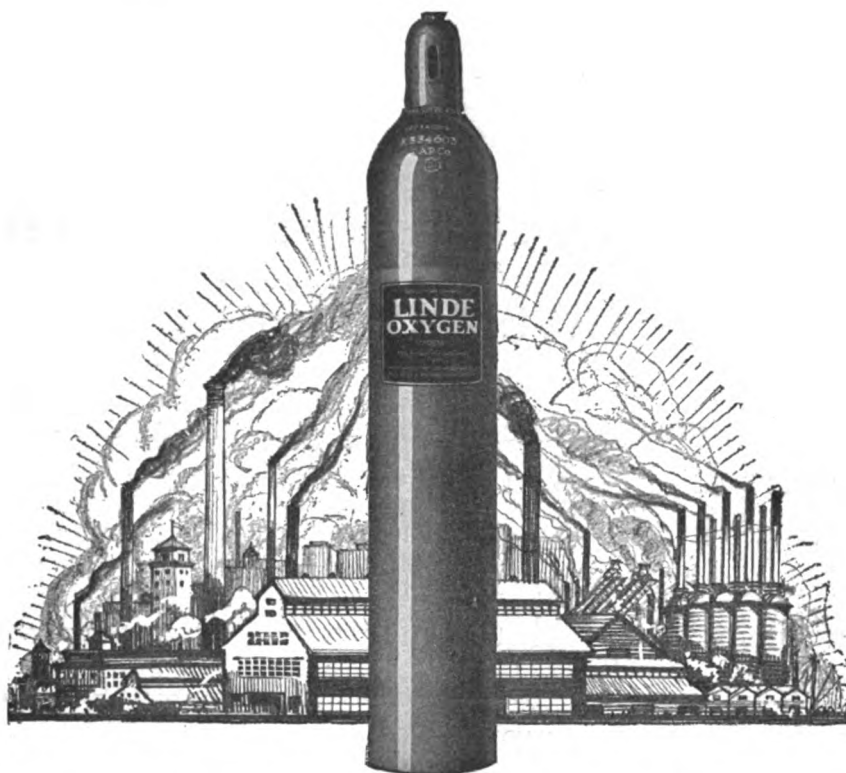
It is difficult to determine exactly what causes this deterioration of the lining of the Inwall. The action of slag, the influence of high temperature, the abrasive action of the moving charge or it may be a combination of all. A study and comparison of all of these leads to the belief that abrasion is a very important factor in the destruction of the inwall. Therefore the brick used must be nearly as strong and tough as those used in the top, but owing to the higher temperatures in the inwall only the minimum amount of plastic clay can be used to secure this toughness.

The Ashland organization after carefully studying the conditions have produced a fire brick that is tough, yet of high refractoriness. Bulletin 108 will explain this in detail. Write for it.

“Line with the Ashland Line”

Ashland Fire Brick Company
Ashland Incorporated 1886 **Kentucky**

Co-operate:—Refer to The Blast Furnace and Steel Plant

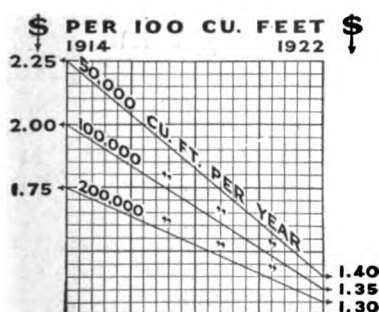


A Policy and Its Results

In 1914 when the oxygen industry was in the early stages of development the LINDE COMPANY adopted as two important features of its sales policy:

First: A definite schedule of prices based on consumption.

Second: A reduction of prices as rapidly as increased volume warranted.



The accompanying chart shows typical prices applying in 1914 as compared with those applying under our new 1922 schedule. This illustrates clearly the benefits to LINDE users of the continued application of these two features to the large increase in production since 1914.

The 1922 prices shown for the respective consumptions are the average for the entire chain of 30 plants and 50 warehouses through which LINDE OXYGEN is distributed today. Slightly lower prices prevail at the plants in districts of heavy oxygen demand. Higher prices prevail where shipments are made from convenient service warehouses, or where undeveloped consumption does not permit large scale plant production and distribution.

No oxygen user, large or small, should close an arrangement for oxygen supply without first securing 1922 prices from the nearest LINDE District Sales Office.

THE LINDE AIR PRODUCTS COMPANY

Carbide and Carbon Building, 30 East 42nd Street, New York

District Sales Offices in these cities: Atlanta, Baltimore, Boston, Buffalo, Chicago, Cleveland, Dallas, Detroit, Kansas City, Mo., Milwaukee, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco

THE LARGEST PRODUCER OF OXYGEN IN THE WORLD

2281-22

Co-operate:—Refer to The Blast Furnace and Steel Plant

The By-Product Coke Industry Moves Forward

The Carnegie Steel Company has awarded The Koppers Company a contract to build a 366 oven extension to their by-product plant and benzol motor fuel recovery plant. This is important as an indication of the general upward trend of business and the continued abandonment of the beehive oven as a source of coke supply.

Even more important is the Carnegie Steel Company's decision to build the New Type Koppers Company Combination Oven, a logical sequence of the remarkable performance of this oven since it was first placed in operation less than nine months ago.

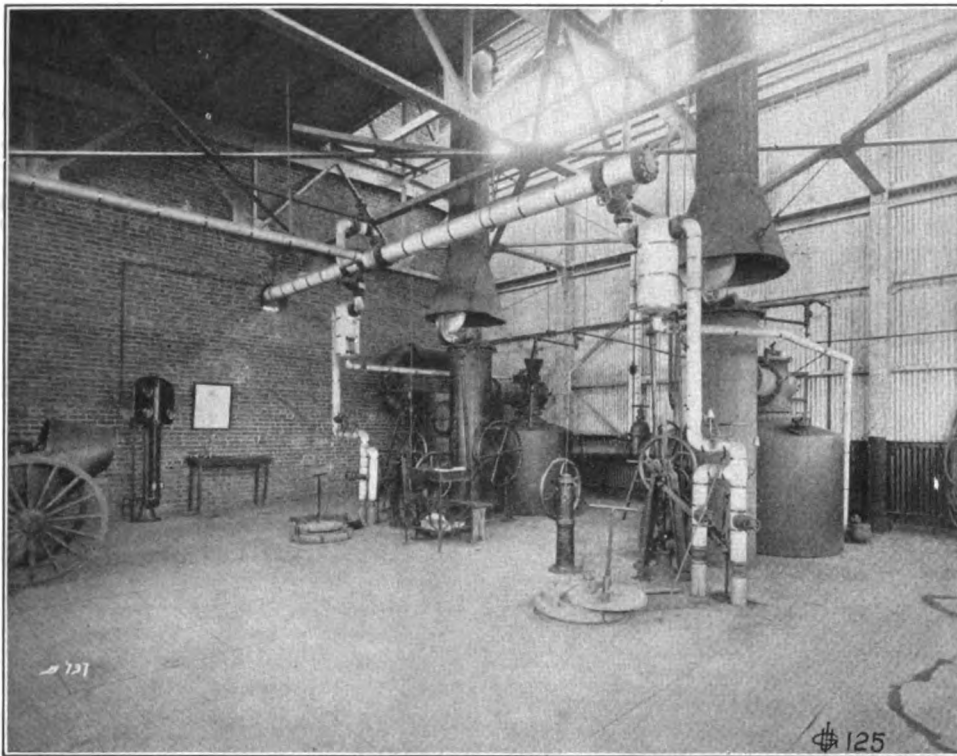
There are now 408 ovens of this new design in operation or under construction, as follows:

Carnegie Steel Company, Clairton, Pa.....	366 ovens
Weirton Steel Company, Weirton, W. Va....	37 ovens
Chicago By-Product Coke Co., Chicago, Ill...	5 ovens
Total.....	408 ovens

THE KOPPERS COMPANY
PITTSBURGH, PA.

Co-operate:—Refer to The Blast Furnace and Steel Plant

THIS
BLUE GAS APPARATUS
IS LOCATED AT THE
BLAW-KNOX COMPANY'S PLANT
ITS PRODUCT IS BEING SUCCESSFULLY USED FOR MANY
INDUSTRIAL PURPOSES



U. G. I. BLUE GAS PLANTS

**CAN BE BUILT IN LARGE OR SMALL CAPACITIES
AND PRODUCE A CLEAN, COOL GAS OF HIGH FLAME
TEMPERATURE**

**WE STAND READY TO HELP YOU WITH
FACTS AND FIGURES**

THE U. G. I. CONTRACTING CO.

Broad and Arch Sts., Philadelphia

335 Peoples Gas Bldg., Chicago

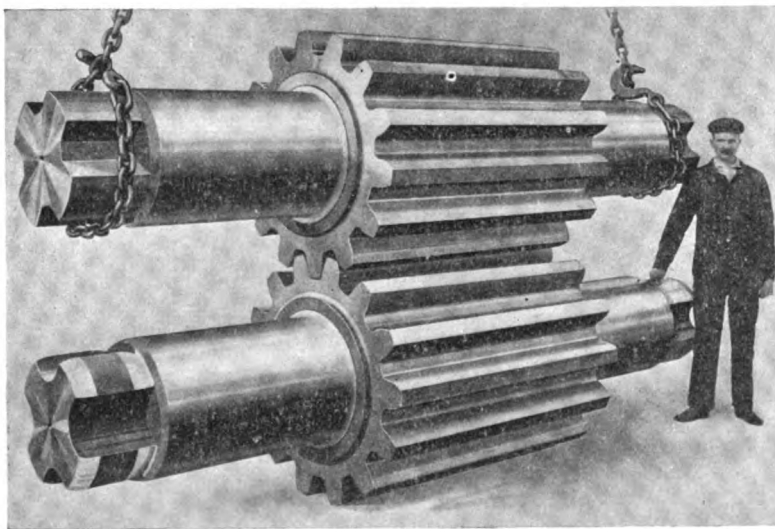
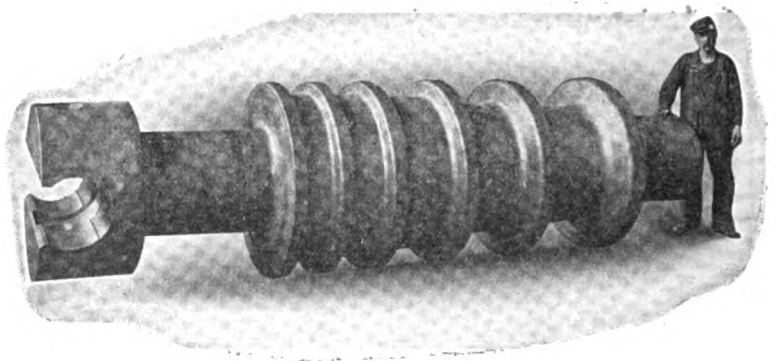
928 Union Arcade, Pittsburgh



Co-operate:—Refer to The Blast Furnace and Steel Plant

MESTA SPECIAL

IT HAS NO EQUAL
for use in
**ROLLS and
PINIONS**



**“MESTA SPECIAL” is an
ALLOY STEEL**

of high carbon-chrome-nickel composition. Heat treated by a scientific process that produces a combination of

HARDNESS and STRENGTH
not found in any other material used
FOR HEAVY CASTINGS

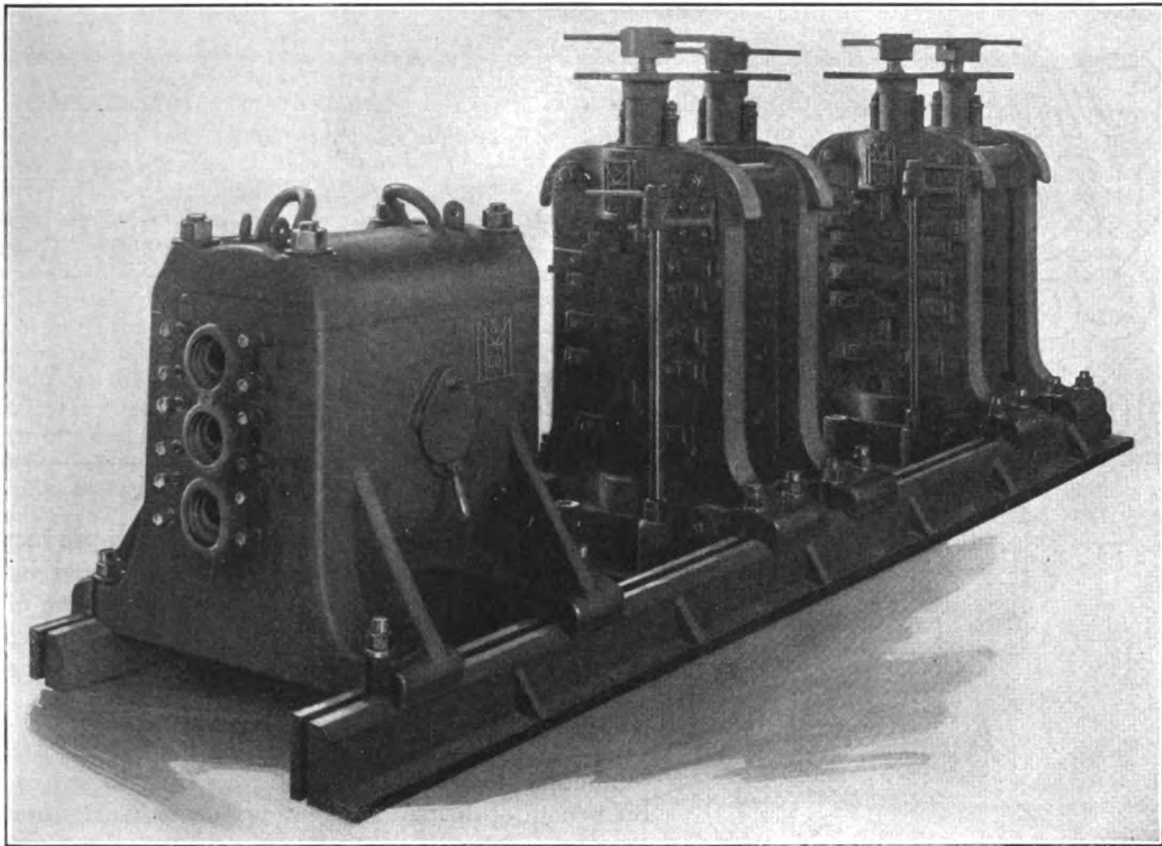
MESTA MACHINE CO.

CHICAGO
Peoples Gas Bldg.

PITTSBURGH, PA.
Oliver Bldg.

WASHINGTON, D. C.
Munsey Bldg.

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FOR SALE

NEW 8" ROLLING MILL

Two Stands—Three High

Comprising very latest type housings—top and bottom screws, etc.; pinions totally enclosed. Double helical cut teeth, running in oil.

READY FOR IMMEDIATE SHIPMENT

*Full Information and Inspection
on request.*

MACKINTOSH-HEMPHILL CO.

Fort Pitt Foundry

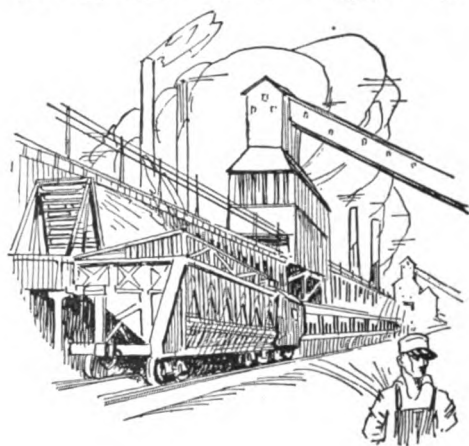
PITTSBURGH, PA.

Woodward Machine Co.

A Garrison Foundry—Pittsburgh Iron & Steel Foundry

Co-operate:—Refer to The Blast Furnace and Steel Plant

The Koppers Company's New Oven



Fifteen Years Ago—the by-product coke oven industry received an impetus from the introduction of a new oven that has carried it from comparative obscurity to a point where it is now recognized as one of the basic industries of the country.

Through its development, coal products worth billions of dollars have been saved and utilized for the benefit of the nation, creating new industries and broadening the scope of others.

The part played by the Koppers Company in this development is best expressed by the fact that out of a total of 9,300 ovens built in the United States and Canada since 1903, when the first Koppers Ovens were built, 7,196, or 88%, have been designed and built by this company.

Today—the Koppers Company's New Oven gives an even greater conception of the benefits to be derived from the by-product coke oven, establishing a standard of performance that far excels anything heretofore attained.

There are now built or building 408 ovens of this new design, as follows:

Chicago By-Product Coke Co., Chicago, Ill.	5
Carnegie Steel Co., Clairton, Pa.	366
Weirton Steel Co., Weirton, W. Va.	37
Total	408

The Koppers Company
PITTSBURGH, PA.

Co-operate:—Refer to The Blast Furnace and Steel Plant